Part II

WORLD FOOD AND AGRICULTURE IN REVIEW


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World food and agriculture in review

From 2007 to 2009, a food price crisis followed by the financial crisis and global economic recession pushed the number of hungry and undernourished people in the world to unprecedented levels, reaching a peak in 2009 of more than 1 billion.[23] In the first half of 2010, world agricultural commodity markets appeared to enter calmer times. Prices of food and agricultural commodities remained high, but had nevertheless declined from the peaks of 2008, and the world economy was emerging from recession.

However, there are growing concerns about high market volatility. These were reinforced from June through October 2010, when cereal prices – particularly those of wheat and maize – increased as drought in the Russian Federation and high temperatures and excess rain in the United States of America reduced supplies. During the food price crisis, many governments took a number of uncoordinated policy actions intended to ensure adequate supplies on domestic markets, inter alia through export bans and other restrictions on exports. Many of these actions, in fact, exacerbated price volatility on international markets.

This part of the report examines levels and trends in global hunger in the context of recent developments in agricultural markets and the global economy. It reviews recent trends in global production, consumption and trade of food and agricultural products and discusses price developments on international and domestic food markets. The analysis focuses on increasing disquiet over price volatility and the resilience of markets to price and economic fluctuations.

TRENDS IN UNDERNOURISHMENT[24]

With the improved prospects for the global economy and lower food commodity prices, FAO projects that the number of undernourished people in the world will decline in 2010 to 925 million people, from the estimated 2009 peak of 1.023 billion (Figure 17). Despite this welcome reduction in world hunger, the number of undernourished remains unacceptably high, representing the second-highest number since FAO's records began.[25]

The decline in 2010 constitutes a reversal of the constant upward trend observed since 1995–97. Indeed, after a steady, albeit slow, decline from 1970–71 to 1995–97, the following years saw a gradual increase in the number of undernourished people in the world. The upward trend accelerated sharply in 2008 during the food price crisis. The number of undernourished spiked in 2009 as a result of the financial crisis and the persistence of high food prices in the domestic markets of many countries in developing regions.

In spite of the increase in the absolute number of undernourished people between 1995–97 and 2009, the proportion of the population who are undernourished in the developing world[26] continued to decline, albeit very slowly, even after 1995–97, before increasing in both 2008 and 2009 (Figure 18). In 2010, 16 percent of the population in developing countries were undernourished, down from 18 percent in 2009 but still well above the target set by the Millennium Development Goal 1C to halve to 10 percent the proportion of undernourished between 1990 and 2015.

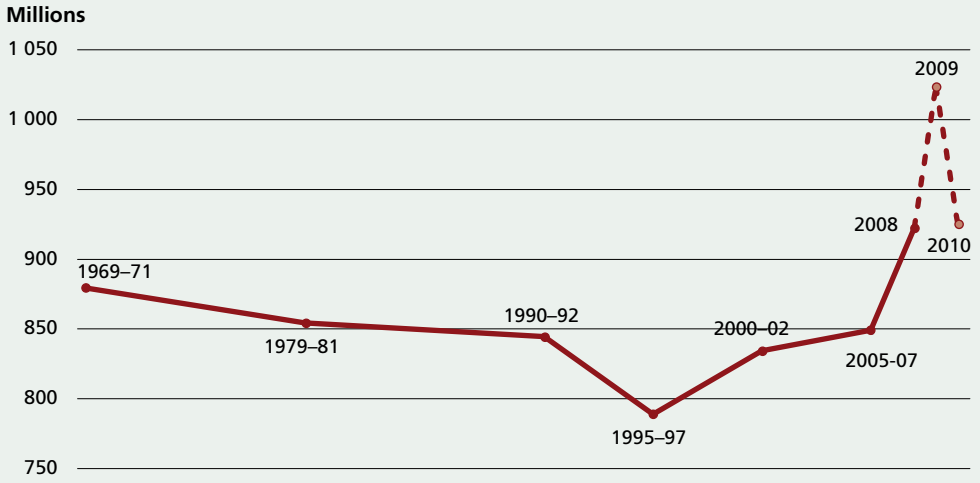
[23] This review of world food and agriculture is based on information available at the end of October 2010. More current information on agricultural markets and the world food situation can be found at http://www.fao.org/worldfoodsituation/wfs-home/en/?no_cache=1 and http://www.fao.org/publications/sofi/en/

[24] A more detailed analysis of trends in global undernourishment and the impact of the crisis on global food security can be found in FAO, 2010g.

[25] FAO estimates date back to 1969–71.

[26] Countries in developing regions account for 98 percent of the world's undernourished population.

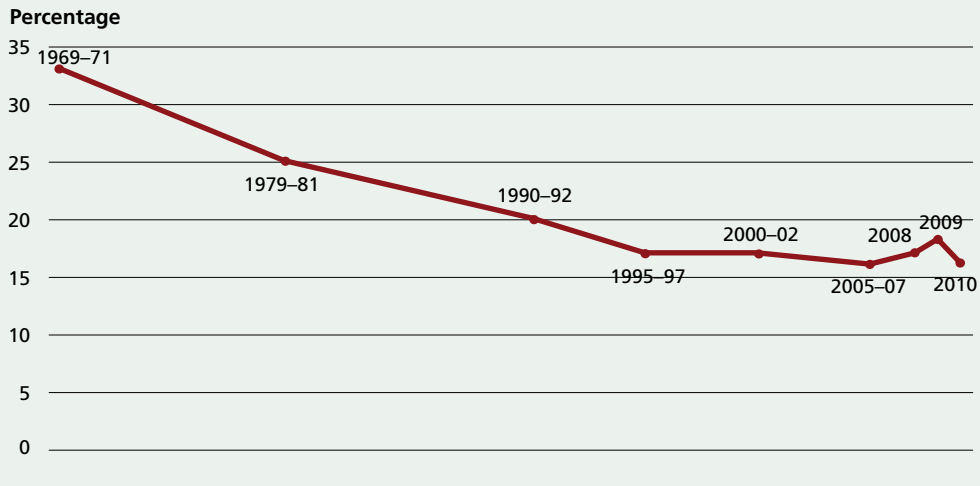
FIGURE 17
Number of undernourished people in the world, 1969–71 to 2010



Notes: Figures for 2009 and 2010 are estimated by FAO with input from the United States Department of Agriculture, Economic Research Service. Full details of the methodology are provided in the technical notes available at www.fao.org/publication/SOFI/EN/.

Source: FAO, 2010g.

FIGURE 18
Proportion of population that is undernourished in developing regions, 1969–71 to 2010



Source: FAO, 2010g.

Most of the world's 925 million hungry people (62 percent of the total) live in Asia and the Pacific, the world's most populous region, followed by sub-Saharan Africa, home to 26 percent of the world's undernourished population (Figure 19). The highest prevalence of undernourishment is found in sub-Saharan Africa, where in 2005–07 (the latest period with complete information by country) 30 percent of the total population were estimated to be undernourished, although large variations occur among countries. While the prevalence of hunger is lower in Asia and the Pacific

(16 percent), Latin America and the Caribbean (9 percent) and the Near East and North Africa (7 percent), it varies greatly by subregion and by country within these regions.

Vulnerability of global food security to shocks

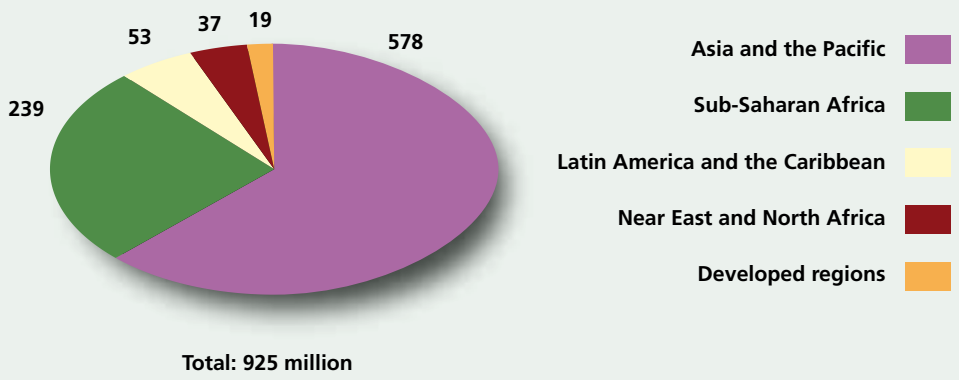
The events of the past few years have highlighted the vulnerability of global food security to major shocks – both in the global agricultural markets and in the world economy. The food price crisis and the ensuing economic crisis reduced the purchasing power of large segments of the population in many developing countries, severely curtailing their access to food and thus undermining their food security.

The rise in global undernourishment numbers in 2008 was a result of the spike in food prices from 2007 to 2008. From a historical perspective, the price developments in this period are not unprecedented, with markets exhibiting a comparable spike during the "world food crisis" of 1973–75 (Figure 20). Even so, FAO's Food Price Index (FPI) declined in real terms (using the United States GDP deflator) over the period 1961–2010.

Since the early 2000s, however, the downward trend appears to have been reversed, or at least interrupted, with food prices increasing significantly in real terms, culminating in the price spike of 2007–08. Although international food commodity prices fell in 2009, they remained high relative to prior years, and data through to October 2010 indicate an increase in the FPI from 2009 to 2010. Moreover, high domestic prices have persisted in many countries, as the decline in international prices was slow in being transmitted to domestic markets.

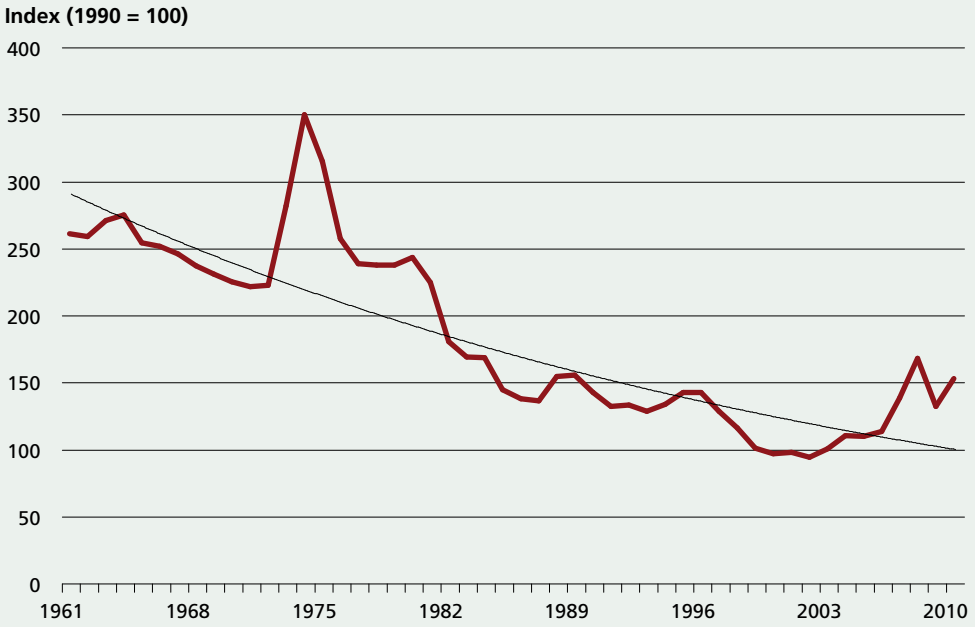
While food prices remained above their pre-crisis level, reduced incomes caused by the financial crisis had a detrimental effect on access to food, leading to a further sharp increase in global undernourishment levels. According to estimates of growth in per capita GDP (approximated using International Monetary Fund [IMF] estimates of growth in total GDP minus population growth rates), the global GDP per capita contracted in 2009, with the advanced economies affected more than the economies of the developing world (Figure 21). However, per capita GDP declined or stagnated in all developing regions, with the exception of developing Asia – where per capita GDP growth slowed to 5.8 percent, compared with more than 10 percent in 2007 (IMF, 2010a; IMF, 2010b). The economic recession had a severe negative impact on export revenues, foreign direct investments and foreign migrant remittances received by developing countries (FAO, 2009b). By 2010, the burgeoning recovery of the world economy and the significant increases in economic

FIGURE 19
Number of undernourished people in 2010, by region (millions)



Source: FAO, 2010g.

FIGURE 20
FAO Food Price Index in real terms, 1961–2010



Notes: Calculated using international prices for cereals, oilseeds, meats, dairy products and sugar. The FAO Food Price Index is calculated from 1990 to the present on a regular basis; in this figure it has been extended back to 1961 using proxy price information. The index measures movements in international prices and not necessarily domestic prices. The United States GDP deflator is used to express the Food Price Index in real rather than nominal terms.
Source: Calculations by FAO.

growth rates underpinned the reduction in global undernourishment numbers discussed above.

In spite of the declining numbers in 2010, reflecting the resumption of economic growth and reduction in food prices, the two crises have drawn our attention to the acute vulnerability of poor countries and populations to global shocks such as those experienced in the most recent years. In addition, localized shocks and emergencies have affected food security in specific countries as well as at the subnational level (see Box 12 for a discussion of food emergencies in countries requiring external assistance). Mechanisms to protect the most vulnerable populations from the effects of such shocks are often woefully inadequate. Consequently, vulnerable households may be forced to deal with shocks by selling productive assets, which are very difficult to rebuild, thus extending and prolonging the negative impacts of the crisis far beyond its immediate effect.

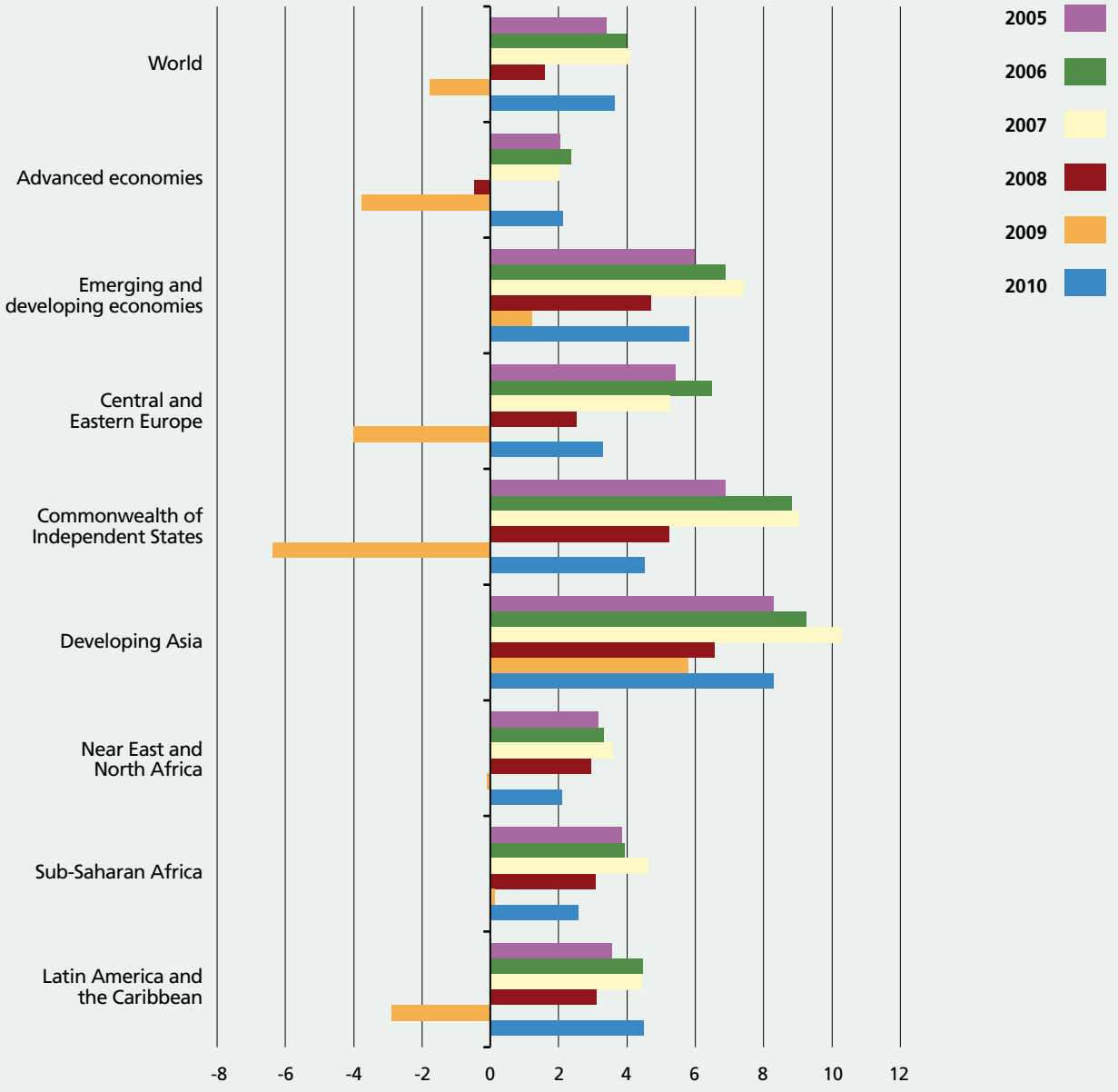
FOOD PRODUCTION, CONSUMPTION AND TRADE DURING THE CRISES

Recent trends in global food production, consumption and trade

According to data and estimates available by mid-2010,[27] growth in the global food production index (measured in constant prices) slowed to about 0.6 percent in 2009, following significant increases of 2.6 and 3.8 percent respectively in 2007 and 2008 – during the food price crisis (Figure 22, page 72). At the same time, global agriculture

[27] The indices of food production, consumption and trade in this section are based on data derived from FAO, *Food Outlook*, June 2010 (FAO, 2010k), updated to reflect production estimates in September 2010. Indices express production, consumption and trade in constant prices and have been computed using international reference commodity prices averaged during 2004–06. Production indices are net of feed and seedstock. Consumption indices are derived from estimates of food use. Commodities covered include wheat, coarse grains, rice, oilseeds, vegetable oils, meat and dairy products.

FIGURE 21
Average annual percentage change in GDP per capita at constant prices, 2005–2010



Notes: Figures from 2010 are projections based on data from the first three quarters of that year, incorporating the most recent estimates made in October.
Source: Author's calculations, using data from IMF, 2010a and IMF, 2010b.

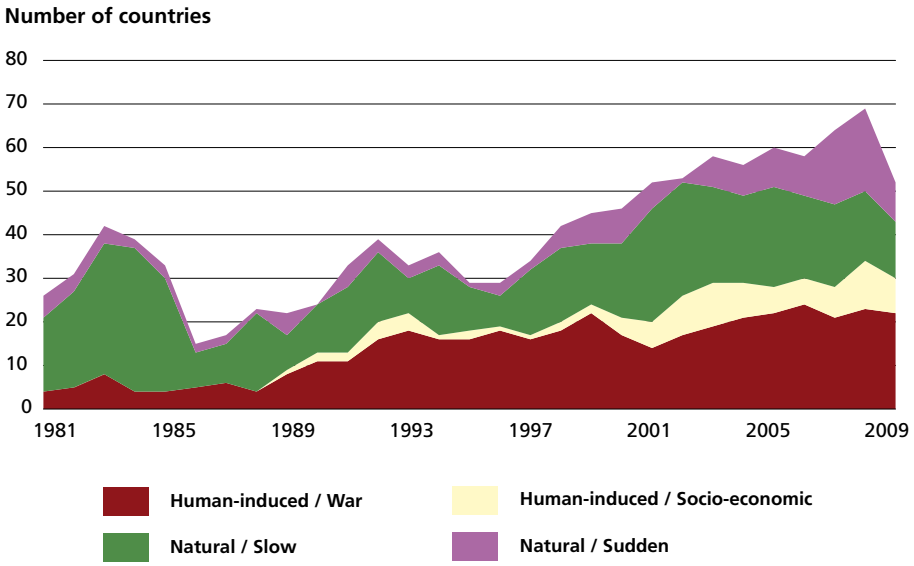
has been affected by other shocks, such as the drought in the Russian Federation during the summer of 2010, which caused the country's wheat production and exports to fall dramatically. Growth of only 0.8 percent is projected for 2010. Global food consumption, which had been increasing at over 2 percent per year (almost 1 percent in per capita terms), fell marginally in per capita terms during the economic recession in 2009. Growth in trade had been around the 4–6 percent range annually before the financial crisis; in 2009 it contracted and is projected to remain negative in 2010.

BOX 12
Food emergencies

Food crises affecting individual countries shock and destabilize the food security status of part of or the entire population (the newly food-insecure) and worsen it for those who were already food-insecure prior to the emergency (the chronically food-insecure). FAO's Global Information and Early Warning System on food and agriculture (GIEWS) monitors and disseminates information on countries in crisis requiring external assistance for food.[1] Food crises can be triggered by a number of factors – natural or human-induced. If the emergency is natural, it may be described as either sudden or slow-onset,[2] and if it is human-induced it may be the result of socio-economic problems[3] or war/conflict (see figure).

The total number of recorded emergencies in recent years is far higher than in the 1980s. Since the mid-1980s, the general trend has been towards an increase

Emergencies (by type) in countries requiring assistance, 1981 to 2009



Note: Data on emergencies do not include events taking place in 2010. At the time of writing, floods in Pakistan amounted to the world's largest humanitarian crisis ever, with up to 20 million people affected (about 18 percent of the country's population) and 6 million people in need of food assistance. The crisis was far larger than both the tsunami of 2004 and the Haitian earthquake of early 2010 combined.
Source: FAO.

Food consumption per capita by region

The most rapid growth in per capita consumption of basic foods in recent years has been recorded in Eastern Europe, followed by Latin America and the Caribbean, then Asia and the Near East and North Africa (Figure 23, page 72). In these regions, per capita consumption generally continued to rise even during the recession. An exception was Eastern Europe, which saw a decline of some 2 percent in 2009, when the region was particularly hard hit by the economic downturn.

Food consumption per capita has remained stagnant-to-falling in the developed regions of North America, Western Europe and Oceania. In sub-Saharan Africa, it rose between 2000 and 2007, but is estimated to have fallen somewhat on a per-capita basis since then. In this context, however, it is important to bear in mind that estimates provided in this analysis do not include all food items; roots and tubers, for example,

in the number of countries affected by emergencies. The number of human-induced emergencies seems to have increased the most, with war/conflict accounting for most of them. Over the past decade and a half, the frequency of sudden-onset natural disasters appears to have been on an upward trend.

From 1981 to 2009, the region with the largest number of countries experiencing emergencies was Africa, followed by Asia, Latin America and the Caribbean, Eastern Europe, Commonwealth of Independent States (CIS) and Oceania. The high incidence in Africa is explained in part by the relatively large number of countries in the region (44 are assessed by GIEWS), but also by civil unrest occurring in many countries as well as numerous slow-onset disasters. The number of African countries experiencing emergencies has ranged from around 15 to 25 annually, with the exception of the late 1980s, when the number was closer to 10. Of the 23 countries considered in the Asian region, the number experiencing emergencies has increased from around 5 annually during the period 1981–2002 to around 10 from 2003 to 2009. The number of countries affected in Latin America and the Caribbean is relatively small but has fluctuated over the time period, whereas in Eastern Europe and the CIS it has been decreasing.

Just as the effects of economic shocks on hunger do not disappear entirely when prices recover and economic growth resumes, the impacts of crises on food security may also persist long after relief and recovery efforts have begun. Countries in protracted crisis face a particularly difficult situation. According to *The State of Food Insecurity in the World 2010* (FAO, 2010g), 22 countries are currently considered to be in a state of protracted crisis. Protracted crisis situations are characterized by recurrent natural disasters and/or conflict, longevity of food crises, breakdown of livelihoods and insufficient institutional capacity to react to the crisis. Such countries need to be considered as a special category with special requirements in terms of interventions by the development community. (For a detailed discussion of the special situation of countries in protracted crisis, see FAO, 2010g.)

[1] Some countries that have consistently funded their own response to emergencies rather than seeking assistance from the international community are excluded from the information collected and disseminated by GIEWS.
[2] Natural sudden emergencies include sudden onset disasters such as floods, cyclones, hurricanes, earthquakes, volcanoes, and locusts. Slowly developing natural disasters such as drought, adverse weather, and transboundary pests and diseases are classified as natural slow emergencies.
[3] Examples of human-induced socio-economic emergencies are crises caused by commodity price collapses/spikes, loss of export markets, currency problems, land tenure problems and health-related crises.

which are widely consumed in sub-Saharan Africa, have not been included.

Food production by region

The global production estimates for the period 2006–10 presented in Figure 22 illustrate a global production response stimulated by high, then falling food prices. However, more detailed regional and national data underlying the aggregates present more complex patterns, reflecting the impact of other influences on agricultural production, including structural causes and weather-related factors. Generally, production in industrialized countries and the "BRIC" countries[28] responded most to the high crop prices of 2007 and 2008. However, over the last decade the strongest production growth was achieved by the LDCs and the "rest of the world" (Figure 24, page 73).

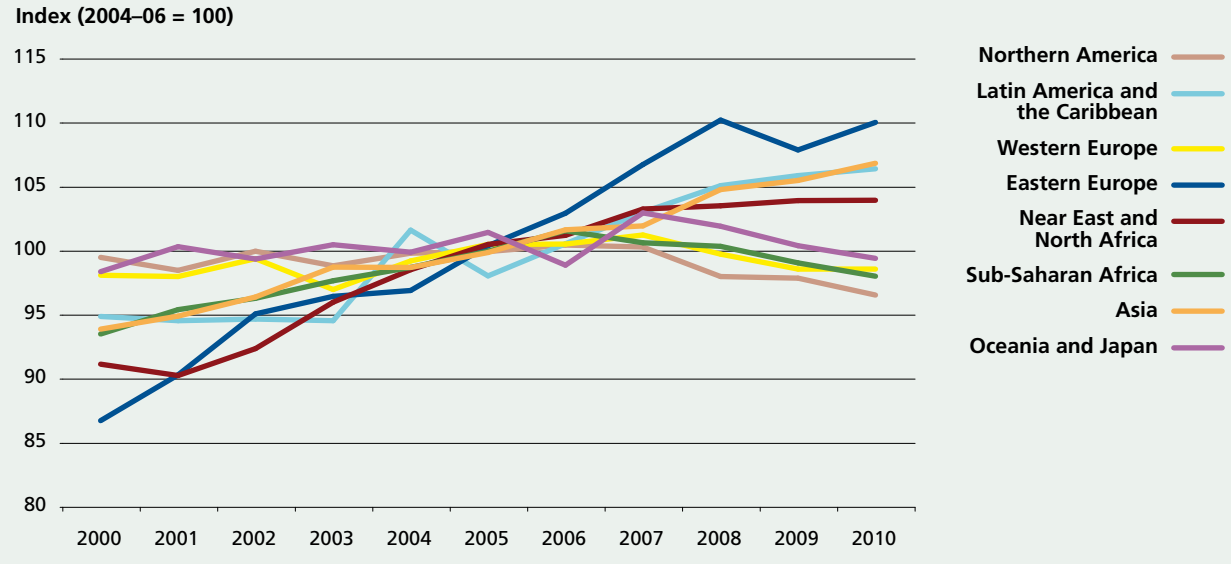
The two geographic regions that experienced the strongest growth in food

[28] Brazil, Russian Federation, India and China.

FIGURE 22
Annual growth in global food production, consumption and trade, 2006–2010

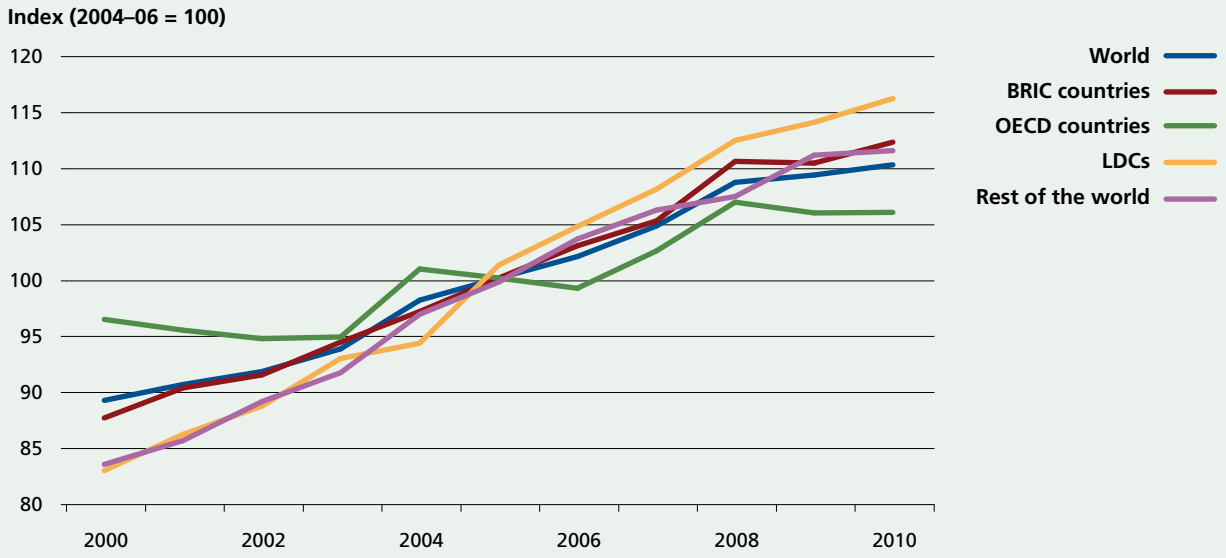
Note: Estimates are in constant US dollars (2004–2006 basis). Data for 2010 are projected; those for 2009 are provisional estimates.
Source: FAO.

FIGURE 23
Indices of per capita food consumption by geographic region, 2000–10



Note: Estimates are in constant US dollars (2004–2006 basis). Data for 2010 are projected; those for 2009 are provisional estimates.

FIGURE 24
Indices of food production by economic group



Note: Net of feed and seedstock. Estimates are in constant US dollars (2004–2006 basis). Data for 2010 are projected; those for 2009 are provisional estimates.
BRIC = Brazil, Russian Federation, India and China; LDCs = least-developed countries.
Source: FAO.

production over the last decade – Eastern Europe and Latin America and the Caribbean – had mixed experiences during the food price and financial crises (Figure 25). The Eastern European countries, after recording bumper crops in 2008, were unable to sustain potential growth in the subsequent years, and the 2010 drought led to substantially reduced levels of crop production in the region. Latin America and the Caribbean suffered weather-related production shortfalls in 2008 but recovered in 2009 and 2010. In Asia, growth in food production remained strong throughout the last decade, generally in the range of 2–4 percent per year, but recorded a slowdown in 2009 and 2010.

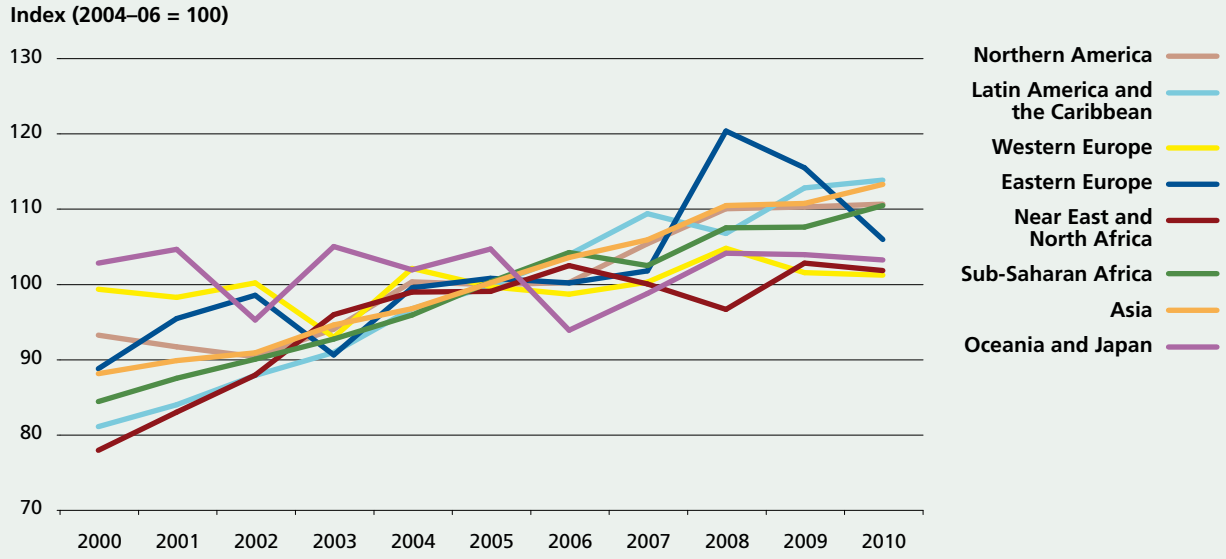
Production failed to grow in 2009 in sub-Saharan Africa, which had seen growth in the range of 3–4 percent per year over the previous decade; it is expected to expand moderately in 2010. The region registering the slowest growth in food production in recent years is Western Europe, where production in 2010 is projected to be only some 5 percent higher than in 2000. Production did increase in 2007 and 2008 under the effect of high prices and reduced set-aside requirements in the European Union (EU), but declined by around 2 percent in 2009 as a result of lower prices and unfavourable weather conditions.

Food exports by region

Food exports by nearly all regions, fell or stagnated in 2009 during the economic crisis (Figure 26). From 2000 to 2008, Eastern Europe saw cumulative export growth of around 350 percent; in 2008 it recorded a particularly high level of grain production. However, exports declined the following year and even more significantly as a result of drought in 2010.[29] Food exports from Western Europe declined, possibly as a result of the rise in the value of the euro as well as of successive policy reforms, including the reform of the EU Common Agricultural Policy. Strong export performances by countries in Latin America and the Caribbean, for which food exports nearly doubled over the decade, have made this region an increasingly important supplier of food to global markets. However, the

[29] The trade index values by region include trade within the region; this may affect conclusions about relative trade performance.

FIGURE 25
Indices of food production by region, 2000–10



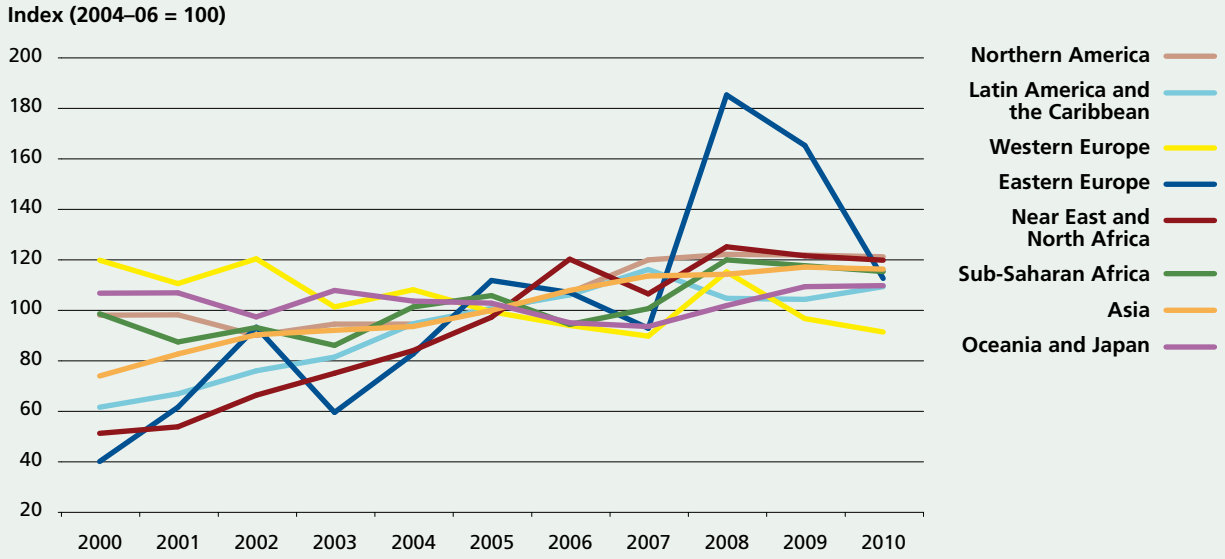
Note: Net of feed and seedstock. Estimates are in constant US dollars (2004–2006 basis). Data for 2010 are projected; those for 2009 are provisional estimates.
Source: FAO.

region's food exports stagnated in volume terms during the food price crisis and during the economic recession. Export volumes from North America grew by 24 percent over the decade, but growth may have been dampened by the rising use of domestic grains for biofuel production.

Food imports by region

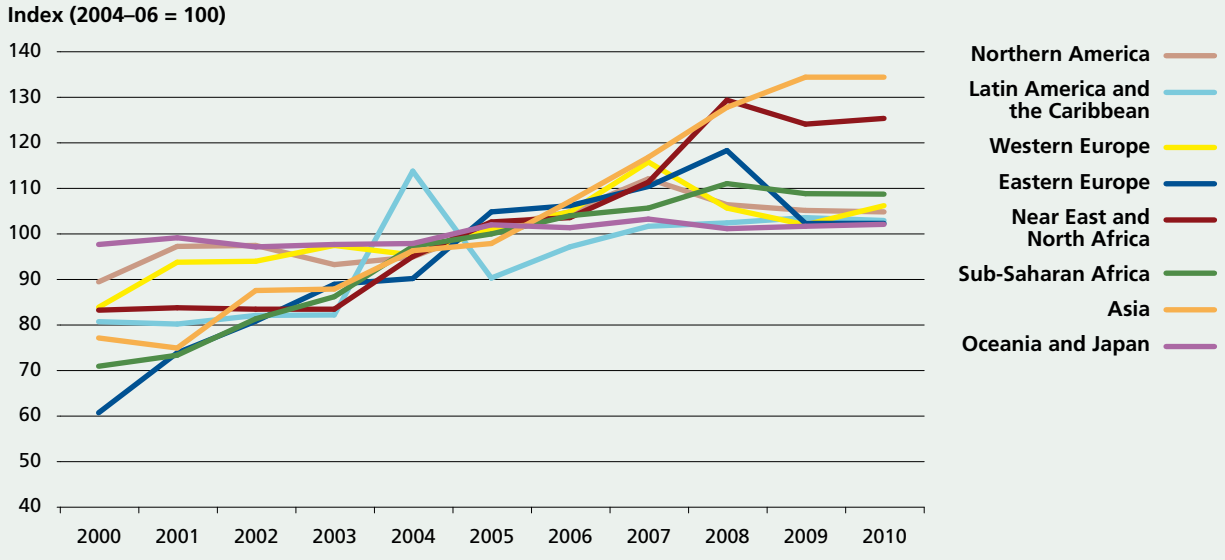
Food imports have been rising more rapidly in Asia than in any other region (Figure 27), increasing in volume terms by almost 75 percent between 2000 and 2010. Imports continued to grow through the food price crisis and also during the recession, as the region succeeded in sustaining relatively high rates of income growth. Food imports by countries in the Near East and North Africa have also grown, financed by growing oil revenues, but were considerably reduced during the recession. Imports by all other regions also grew significantly over time, with the exception of North America and Oceania, where they remained relatively stagnant. Sub-Saharan Africa's food import volumes increased during the first half of the decade, but the higher international prices during the food price crisis and the subsequent economic downturn translated into a decline in import volumes in 2008 and stagnating levels in 2009 and 2010. During the last decade, net food imports by sub-Saharan Africa, measured in constant prices, increased more than 60 percent, implying a further widening of the food trade deficit faced by this region over the past several decades, as population growth has outstripped growth in food production.

FIGURE 26
Indices of food export volumes by geographic region, 2000–10



Note: Estimates are in constant US dollars (2004–2006 basis). Data for 2010 are projected; those for 2009 are provisional estimates.
Source: FAO.

FIGURE 27
Indices of food import volumes by geographic region, 2000–10



Note: Estimates are in constant US dollars (2004–2006 basis). Data for 2010 are projected; those for 2009 are provisional estimates.
Source: FAO.

RECENT TRENDS IN AGRICULTURAL PRICES: A HIGHER PRICE PLATEAU, AND GREATER PRICE VOLATILITY

International prices for agricultural commodities

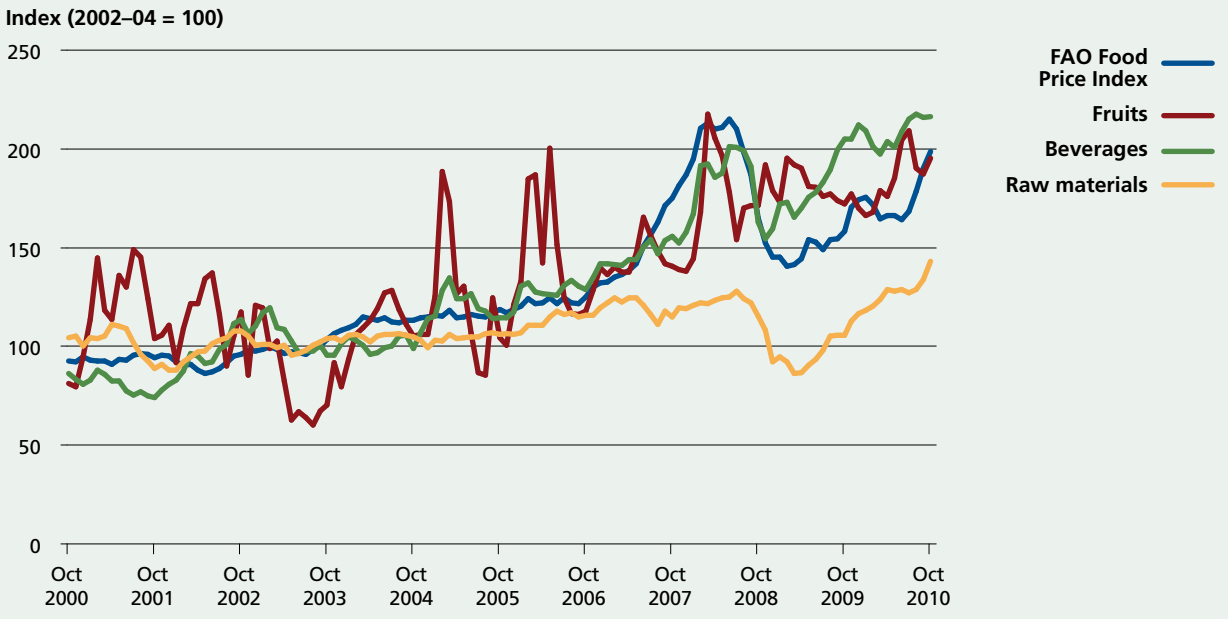
As discussed above, price developments in food commodity markets, especially those used to calculate the FPI (cereals, oils, dairy, meats and sugar), can have a critical impact on global food security. Close monitoring of market developments is therefore crucial. This section reviews recent developments in international and domestic food markets, discusses the current situation and identifies major issues of concern for future food security.

During the food price crisis of 2007–08 the FPI increased sharply (Figure 28). At the time of writing, the most recent data shows the FPI to have increased again from June through October 2010. In fact, by October 2010, the FPI was just 8 percent below its peak in June 2008.

Among the commodities included in the FPI, prices for cereals, oils and dairy products showed a sharp increase during the 2007–08 food price crisis and have shown substantial and highly correlated volatility since 2006 (Figure 29). More recently, from June through October 2010, prices of cereals, oils and sugar have increased, largely explaining the increase in the FPI over the same period. The volatility of sugar prices, particularly since 2005, has been even more pronounced than that of the other commodities contained in the FPI. Meat prices have fluctuated little in comparison with those of cereals, oils, dairy products and sugar.

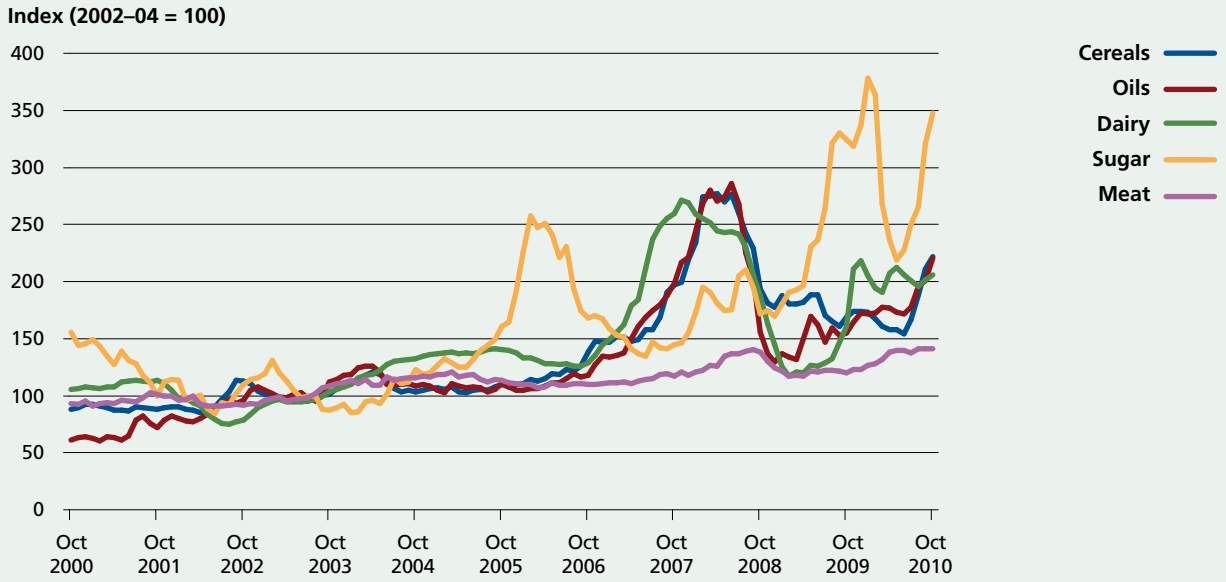
Among other agricultural commodities that are not part of the FPI (Figure 28), international fruit prices moved closely together with those of the FPI, exhibiting a spike during the food price crisis and a decline during the subsequent financial crisis. The price of beverage products moved less closely with prices of commodities contained in the FPI. Raw material prices were generally not affected by the rise in other commodity prices during the food price crisis but decreased significantly in response to the economic downturn in 2009 before moving upwards again in response to economic recovery, reflecting the high income elasticity of demand for this group of commodities.

FIGURE 28
FAO Food Price Index and indices of other commodities (fruits, beverages and raw materials), October 2000–October 2010



Source: FAO.

FIGURE 29
Indices of prices of commodities included in the FAO Food Price Index (cereals, oils, dairy, meat and sugar), October 2000–October 2010



Sources: FAO and IMF.

Although prices of basic commodities have declined from the peak levels they attained during the food price crisis, by the third quarter of 2010 prices of all commodities in the FPI remained significantly higher than those preceding the crisis. According to projections in the *OECD-FAO Agricultural Outlook 2010–2019* (OECD-FAO, 2010), real commodity prices over the next decade are expected to be, on average, higher than they were in the period 2000–10. Factors underlying the projected higher agricultural commodity prices include higher production costs, increased demand by emerging and developing countries and growing production of biofuels from agricultural feedstocks.

Domestic food prices in developing countries

Last year's edition of this report discussed price transmission from international to domestic markets (FAO, 2009a). After the food price crisis, domestic commodity prices in many countries were slow in moving downwards, despite the rapid fall in international prices, suggesting a slow or low degree of transmission to domestic consumers. This phenomenon created a double threat to the food security of poor consumers, as domestic food prices remained high while income growth slowed or turned negative.

In 2010, this double threat seems to have diminished relative to the preceding period, particularly as many emerging and developing countries appeared to have recovered from the economic slowdown earlier and more strongly than expected (See IMF, 2010c). Moreover, the most recent available data on domestic prices indicate that cereal prices in developing countries have declined significantly from their peaks in 2008, although at the time of writing the price of wheat on international markets had again risen sharply. Data on cereal wholesale prices in 74 developing countries collected by GIEWS (FAO, 2010j) show that, by early 2010, such prices had fallen in nominal terms relative to their peak values in 90 percent of the countries. After adjusting for inflation, more than 98 percent of price quotes had fallen from their peaks by the start of 2010. Nevertheless, although domestic prices in developing countries have declined, they remain high compared with before the food price crisis. Indeed, in early 2010, more

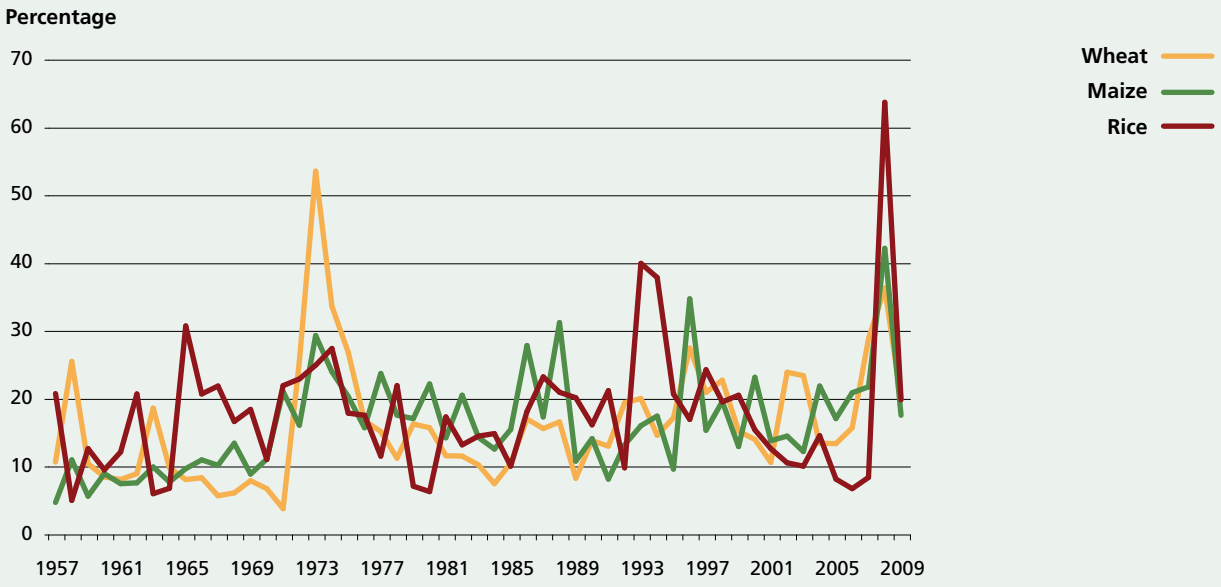
than 80 percent of the inflation-adjusted wholesale cereal price quotes remained above their average level in 2006 – the year prior to the food price crisis.

Growing concerns over price volatility

The extreme variability of prices of basic food commodities over the most recent period has caused considerable concern. Episodes of high prices are detrimental to food security, and the high uncertainty associated with price volatility affects producer viability and may lead to reduced agricultural investments. Data on price volatility over a longer period (starting in 1957), show that high price volatility such as that recently experienced is not far out of line with past experiences (Figure 30). Indeed, periods of high price volatility are not new to agriculture, but there are fears that price volatility may be increasing.

Increased disquiet over greater volatility of food prices is related to the emergence of new factors contributing to it. One important factor is the expected increase in severe weather events as a consequence of climate change, which could lead to increased fluctuations in agricultural and food production. A further source of price volatility is the expanding production of biofuels based on agricultural feedstocks, which could tighten the link between prices of agricultural commodities, especially maize, and developments and conditions in international energy markets, implying an increased transmission of fluctuations in energy prices onto markets for agricultural and food commodities. The close relationship between the production costs of ethanol from maize and of petrol from crude oil is illustrated in Figure 31. This also implies that prices for crude oil and for maize now appear to be closely related. In the light of current uncertainties surrounding future oil prices and their impact both on demand for biofuels and on agricultural input markets (e.g. markets for fertilizers, mechanization, and transportation), concerns over increased agricultural price volatility from these new sources appear to have some justification. Furthermore, higher real crop prices have also recently induced higher production in some areas where yield volatility is also higher, such as the grain-producing areas around the Black Sea. To the extent that

FIGURE 30
Historic annualized volatility of international grain prices



Note: Some price variability can be predicted (e.g. seasonal variation, business cycles or other trending behaviour). The figure shows the coefficient of variation of prices after the predictable component has been removed from the observed values (for explanation, see OECD-FAO, 2010, p. 57, footnote 5). Values close to zero indicate low volatility, higher values denote greater volatility.

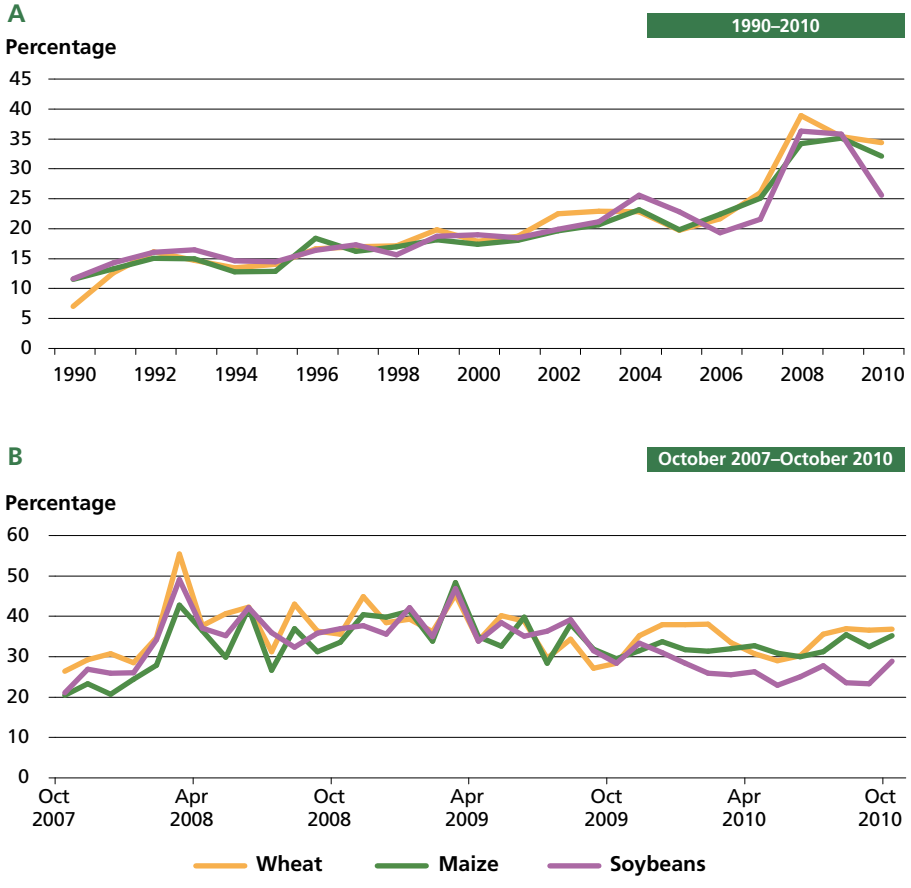
Source: OECD-FAO, 2010.

BOX 13
Implied volatility as a measure of uncertainty

How organized commodity exchanges perceive and value uncertainty is important for future decisions on production, trade and investment. Implied volatility represents the market's expectation of how much the price of a commodity is likely to fluctuate in the future. It is derived from the prices of derivative contracts, namely options, which are priced on the basis of the market's estimates of future prices as well as the uncertainty surrounding these estimates. The more divergent are traders' expectations about future prices, the higher the underlying uncertainty and thus the implied volatility. (For a more detailed discussion of the concept and the methodology, see FAO, 2010k.)

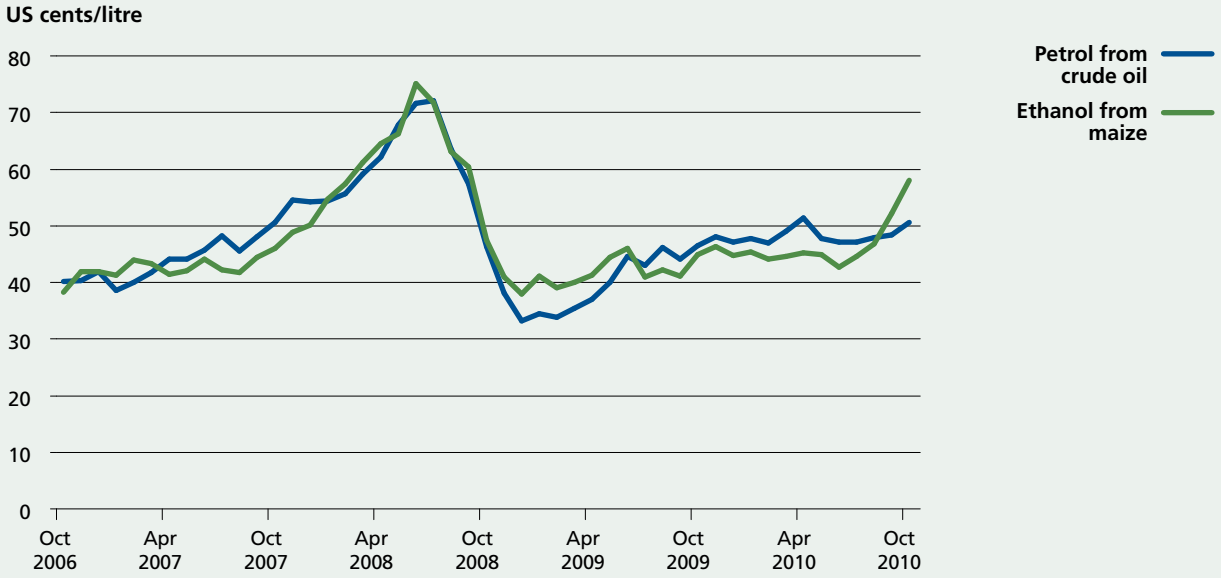
Implied volatilities for wheat, maize and soybeans since 1990 are presented in Figure A and movement over the period October 2007–October 2010 is presented in Figure B. Market perceptions of volatility as estimated by the implied price volatility have increased systematically, with a sharp peak in 2008. In the aftermath of the 2007–08 market turmoil, implied volatilities fell as markets began to stabilize. However, around mid-2010 implied volatility started moving upwards again when doubts began to emerge over Russia's ability to meet grain export commitments, followed by similar concerns over United States maize prospects and expected demand outstripping soybean supply.

Implied price volatility of wheat and maize



Source: FAO.

FIGURE 31
Co-movement of energy production costs: ethanol from maize versus petrol from crude oil, October 2006–October 2010



Notes and sources: FAO calculation using ethanol production, simple cost budgets and IMF commodity price statistics.
The petroleum equivalent is the per-litre price of crude oil adjusted to an ethanol energy basis, plus a cost adjustment for processing to gasoline. Ethanol from maize is the cost of producing ethanol, net of by-product revenues, on a per-litre basis. Source prices are Brent Crude oil and US Gulf #2 Maize.

these areas increase their export market shares, greater supply volatility from these regions may affect price volatility.

A highly relevant factor in recent times has been the uncoordinated national policy responses to fluctuations in international prices, which may exacerbate market volatility. The impact of such policies was discussed in last year's edition of this report (FAO, 2009a). A further issue is the role of speculation in recent market volatility; this has been surrounded by considerable controversy, and further research evidence on the topic is needed.

Summary of the current situation and future prospects for agricultural markets

In the aftermath of the food price and financial crises, global food and agricultural commodity markets appear to be characterized both by higher price levels and increased uncertainty. During the crises, per capita food consumption decreased marginally in sub-Saharan Africa as well as in North America, Oceania and Western Europe, but has continued to grow in other regions, although more slowly in Eastern Europe. Despite some fluctuations during the crises, food production increased over the last decade in all regions except Western Europe, as well as Japan and Oceania. With the exception of Eastern Europe and Latin America and the Caribbean, which represent key future food suppliers, supplies from traditional exporters appear to be increasing more slowly than in the past. Food imports decreased as a result of the price and financial crises in all regions except Asia and the Near East and North Africa.

Commodity prices appear to be on a higher plateau and are projected to remain at levels above those of the pre-crisis period while markets have remained highly volatile. Market volatility and its possible implications for food security have become increasingly problematic for policy-makers worldwide. In an environment of increased uncertainty, policy responses to the situation will be a critical determinant of future market developments and their possible implications for food security.

BOX 14
Price volatility and FAO's Intergovernmental Groups on Grains and Rice

The extraordinary joint intersessional meeting of FAO's Intergovernmental Group on Grains and Intergovernmental Group on Rice held in Rome on 24 September 2010 recognized that unexpected price hikes and volatility are amongst the major threats to food security. They pointed to a number of root causes that need to be addressed:

- the lack of reliable and up-to-date information on crop supply and demand and export availability;
- insufficient market transparency at all levels, including in relation to futures markets;
- growing linkages with outside markets, in particular the impact of "financialization" on futures markets;
- unexpected changes triggered by national food-security situations;
- panic buying and hoarding.

Source: FAO, 2010l.

CONCLUSIONS

The world food-price crisis, followed by the global financial crisis and economic recession, pushed the number of undernourished people in the world to unprecedented levels in 2008 and 2009. Estimates indicate that the number of undernourished people declined in 2010, as food prices fell from their peak levels and global economic conditions began to improve. However, levels of undernourishment remain very high by historical standards, and concerns both for the world economy and for world agriculture continue to be at the top of the international policy agenda. In October 2010, the IMF indicated that "macroeconomic recovery is proceeding broadly as expected, although downside risks remain elevated" (IMF, 2010b, p. 1). At the same time, the sudden rise in cereal prices from June through October 2010 raised fears of a new food-price crisis.

Whatever the short-term outlook for the world economy, agriculture and food security, a number of lessons with long-term implications appear to have emerged or to have been confirmed from the developments of the past few years.

The experiences of the food price and financial crises have provided a sharp reminder of the vulnerability of world food security to shocks in the global food system and the world economy and have demonstrated how rapidly an already unacceptable level of food insecurity in the world can deteriorate in the face of such events. This has underscored the importance of appropriate safety nets and social programmes to protect the food-insecure from the immediate impact of shocks like these, as well as the critical and urgent need to boost the productive capacity of developing countries and to enhance their resilience to shocks.

The food price crisis has highlighted a series of concerns specific to the agriculture sector and agricultural markets. First, the most recent projections by FAO and OECD indicate that, although international prices fell fairly rapidly from the peak levels attained during the global food-price crisis, they remain higher than they were before the crisis and it appears that higher food prices are here to stay. Agriculture faces higher production costs, increasing demand from rapidly growing countries in developing regions and expanding biofuel production. As a result, prices are projected to increase over the next decade and to continue to be at levels, on average, above those of the past decade. There is by now a widely recognized need to significantly increase investments in agriculture in order to generate environmentally sustainable productivity increases and expand production, while at the same time enhancing the contribution of agriculture to economic growth and poverty alleviation.

A second source of concern is the recent turbulence in international agricultural markets and the risk of increased price volatility. Price volatility has always been a feature of agricultural markets; however, a number of trends appear to be accentuating this phenomenon. Climate change may

be leading to more frequent and extreme weather events and to the consequent risk of shocks to agricultural markets. Expanding production of biofuels based on agricultural commodities will make agricultural markets much more dependent on developments in global energy markets.

A specific "human-induced" threat to market stability is that of uncoordinated national policy responses to increasing food prices. Because such measures are based exclusively on concerns about domestic food security, with little regard for their effects on trading partners, they may exacerbate international market volatility and jeopardize global food security.

Given the importance of international food commodity markets for global food security and hunger-reduction efforts, there is a need to address issues of governance on global agricultural markets with a view to confronting the problem of price volatility and avoiding counter-productive "beggar-thy-neighbour" policy responses. Necessary steps would include improved regulation of markets, greater market transparency, improved and timely statistics on food commodity markets, establishment of an appropriate level of emergency stocks and provision of adequate and appropriate safety nets. The recent food and financial crises, the uncoordinated policy responses and continuing fears over global food-market turmoil have underscored the urgent need for action by the international community.