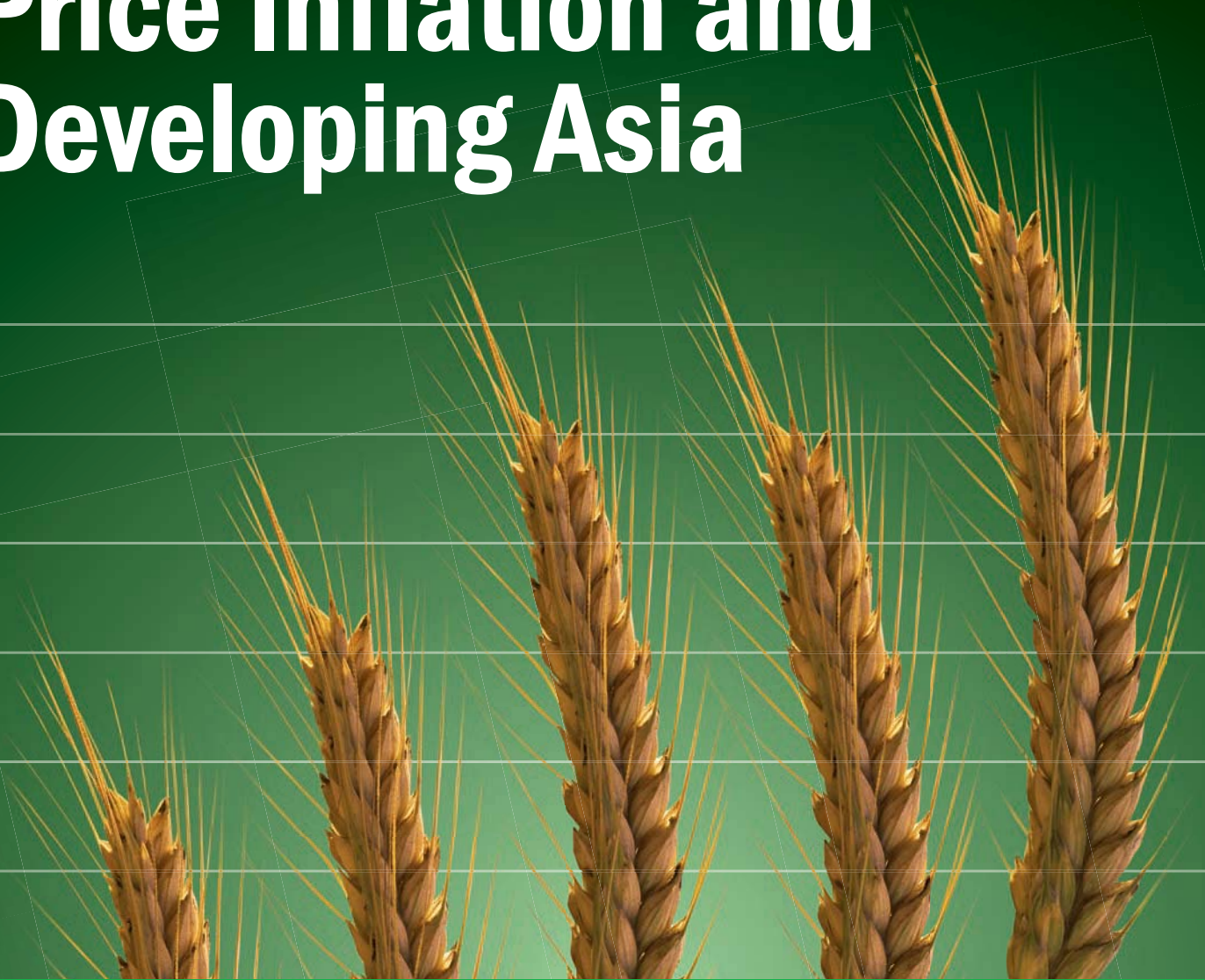


Global Food Price Inflation and Developing Asia



Asian Development Bank



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March 2011

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Abstract

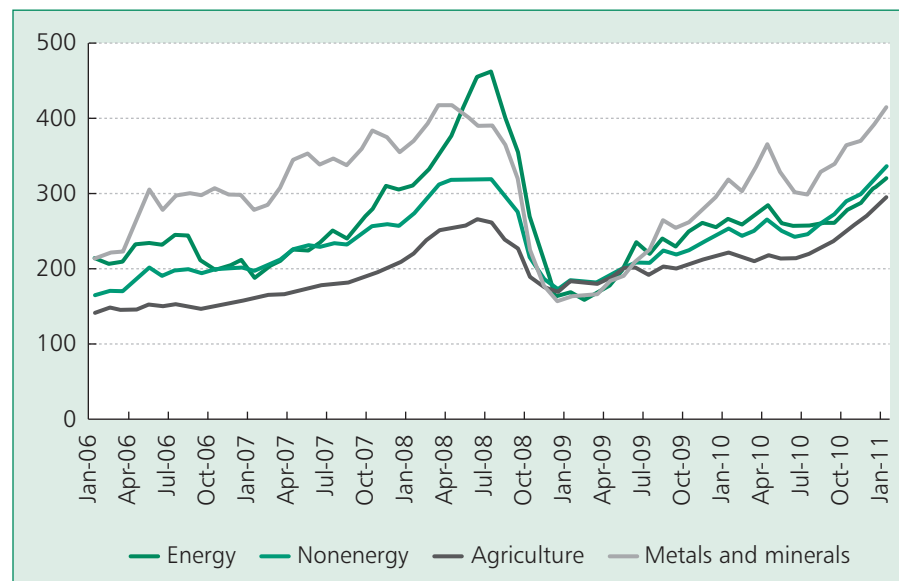
Global food prices registered a new high in February 2011, rising by more than 30% year-on-year, underpinned by large increases in the prices of cereals, edible oils, and meat. While the recent price increases were triggered largely by production shortfalls due to bad weather, structural and cyclical factors that were at play during the 2007–2008 food crisis continue to be relevant, especially in light of the strong recovery of many emerging economies from the global economic crisis. In the short term, a continuing trend of high and volatile food prices is likely. This is because grain carryover stocks have been falling as production has been unable to meet utilization requirements. In addition, supply uncertainties are rising due to extreme weather disturbances. Hikes in the international prices of rice and wheat—the two key staples produced and consumed in developing Asia—together with increases in other domestic food items, have translated to an average domestic food price inflation in January 2011 of about 10% in the region. Simulation results suggest that if a 30% increase in global food prices persists throughout 2011, gross domestic product (GDP) growth for some food-importing countries in the region could be choked off by up to 0.6 percentage points. If this is combined with a 30% increase in world oil prices, GDP growth could be reduced by up to 1.5 percentage points compared with the baseline scenario where food and oil price hikes do not occur. Higher food prices erode the purchasing power of households and undermine the recent gains from poverty reduction. A 10% rise in domestic food prices in developing Asia (home to 3.3 billion people) could push an additional 64.4 million into poverty, or lead to a 1.9 percentage point increase in poverty incidence based on the \$1.25-a-day poverty line. The frequency with which food price spikes have occurred in recent years suggests that long-term solutions—such as improvements in productivity, increases in agricultural investment, stronger market integration, targeting subsidies to the poor, and global and regional cooperation—need to be implemented to secure food supplies for the world’s growing population.

Introduction

When commodity prices returned to historic trend levels in late 2008, it was believed that they will rise over the next decade but only gradually. Contrary to most expectations, however, the specter of high commodity prices has reemerged (Figure 1). Energy prices have been soaring, with the Brent crude oil spot price breaching \$115 per barrel in early March 2011, marking a 31-month high.¹ Nevertheless, crude oil prices have remained below the \$145 per barrel documented in July 2008. In contrast, nonenergy prices have surpassed the peaks recorded in 2008, underpinned by record prices for agricultural commodities, metals and minerals, and raw materials.

The rise in food prices, in particular, has been worrisome. In January 2011, the benchmark index for food prices of the Food and Agriculture Organization (FAO) of the United Nations exceeded the steepest price level on record in 2008. The index went up by 28.4% during the month compared to the year-ago level. Food prices continued to climb in February, recording a year-on-year increase of 34.2%. Of this increase, 13.8 percentage points were contributed by cereals, 8.9 percentage points by edible oils, 5.4 percentage points by meat, 3.7 percentage points by dairy products, and 2.4 percentage points by sugar (Figure 2).

Figure 1 Commodity Price Indices, January 2006–February 2011
(2000 = 100)



Source: World Bank, Commodity Price Data (Pink Sheet). www.worldbank.org (accessed 4 March 2011).

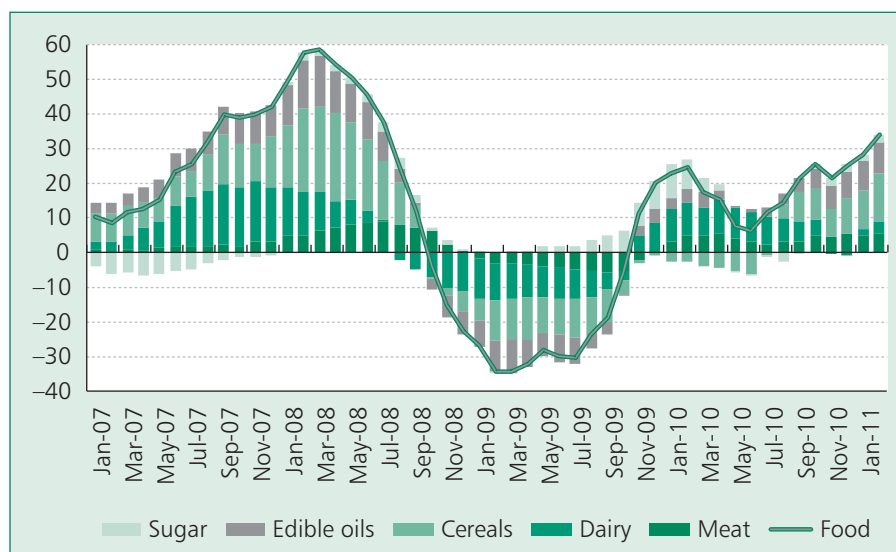
¹ Brent crude oil prices last reached this level in August 2008.

2 Global Food Price Inflation and Developing Asia

The food price increases have been particularly pronounced since the middle of last year. From June 2010 to February 2011, global food prices increased by 40.4%. Among different food items, prices of sugar increased by 85.9%, cereals by 67.9%, edible oils by 65.9%, dairy products by

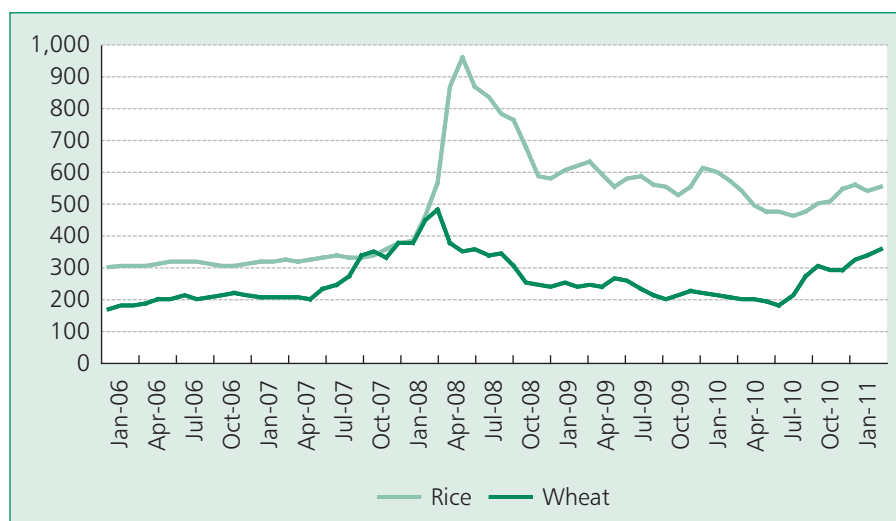
13.2%, and meat by 11.2%. For the two key staple cereals that are produced and consumed in Asia, the international rice (Thai 100% B) price rose to \$554.33 per metric ton in February 2011 from just \$474.60 per metric ton in June 2010, or an increase of 16.8%; while international wheat (US

Figure 2 Sources of Food Price Increases, January 2007–February 2011
(percentage points, year-on-year)



Source: ADB staff calculations using FAO Food Price Index Data. www.fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/ (accessed 4 March 2011).

Figure 3 International Rice and Wheat Prices, January 2006–February 2011
(\$ per metric ton)



Source: FAO, Global Food Price Monitor. www.fao.org/giews/pricetool (accessed 1 March 2011).

Gulf No. 2 hard red winter) prices rose from \$181.4 per metric ton to \$362.00 per metric ton during the same period, or almost doubled (Figure 3). The more moderate increase in international rice prices,

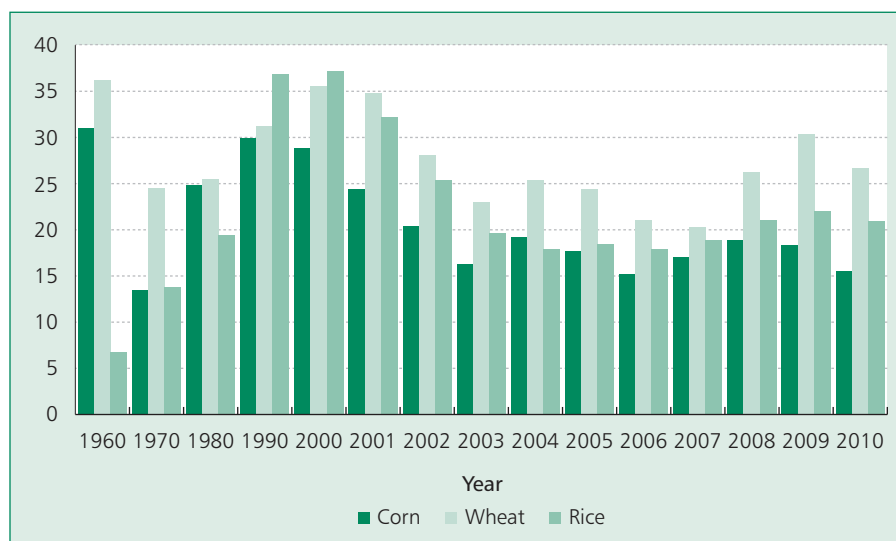
compared to those recorded during 2007–2008, was partly due to the fact that Thailand and Viet Nam released ample supplies from their stocks to mitigate rising price pressures.

Causes of High Food Prices

As pointed out in the special report by ADB (2008a), structural and cyclical factors were both at play during the 2007–2008 food price crisis. At that time, global stocks of major cereals had been falling dramatically, indicating the failure of production to catch up with consumption for a number of years before the crisis. At the end of 2006, the combined stocks of rice, wheat, and corn had fallen to 315 million metric tons, compared to the maximum year-end stock of 547 million metric tons of grains recorded in 1999. Stock-to-use ratios had also been falling in the run up to the 2007–2008 episode (Figure 4). In the last decade, the lowest stock-to-use ratios for rice and corn were recorded in 2006, and for wheat in 2007. While stocks have improved in the aftermath of the 2007–2008 crisis, they remained at just about 400 million metric tons in 2010.

A number of other structural factors that influenced the rise in food prices in 2007–2008 continue to be relevant in the current food price increase episode. Demand-side factors include a growing world population, strong income growth in emerging economies, and changing diets away from staple foods toward increased consumption of meats and processed foods that require much larger proportions of food as feedstock and inputs. Supply-side factors include competing use of food grains, especially corn and rapeseed oil, to produce biofuel; urbanization and diversion of agricultural land for commercial purposes; increasing scarcity of fresh water for irrigation; low crop yields; rising input costs; and neglect of investment in agricultural technology, infrastructure, processing facilities, and agriculture research and development.

Figure 4 Stock-to-Use Ratios of Selected Grains (%)



Source: Foreign Agricultural Service, United States Department of Agriculture. www.usda.gov (accessed 4 February 2011).

Meanwhile, cyclical factors have also been harshly influencing food prices. In the second half of 2010, agricultural prices surged following a series of crop failures in major crop-producing areas (Table 1). The severe and prolonged La Niña weather phenomenon has resulted in massive flooding in many countries, and is considered the worst in 3 decades (the last time was in 1973–1976). Extreme weather disturbances are being touted as the main culprit causing supply shortfalls in a range of commodities such as corn, coffee, rice, wheat, and sugar.

In addition, strong recovery, especially in emerging economies, boosted demand for food. The weakness of the US dollar, in which most food commodities are denominated, contributed to higher prices as well. Speculative activities

are likewise a source of volatility in commodity markets. Rising oil prices is another factor, since it increases the input costs of food production by raising transport costs and makes diesel pumps more expensive for irrigation.

Apart from these structural and cyclical causes, protectionist policies such as quotas on exports, export bans, export taxes, and national self-sufficiency programs added pressure to already rising food prices. Export restrictions by top wheat producers—the Russian Federation and Ukraine—as well as major producers Uzbekistan and Kazakhstan, prompted importers in the Middle East and North Africa to hoard stocks. These actions, together with market responses to fears that key importing countries would impose more pressure from the demand side, further squeezed global supplies.

Table 1 Major Extreme Weather Events between June and December 2010

Weather Event	(Most) Affected Area
Severe winter and/or snow fall	1. Europe (Western) 2. United States
Drought and wildfires	1. China, People's Republic of (Shandong) 2. Russian Federation (mainly west) 3. United States (California, Texas, Alabama)
Cyclone, flooding, inundation	1. Australia (Queensland) 2. Pakistan 3. China, People's Republic of 4. Malaysia, Myanmar, Philippines, Thailand 5. United States (Arkansas)

Source: US National Climatic Data Center.

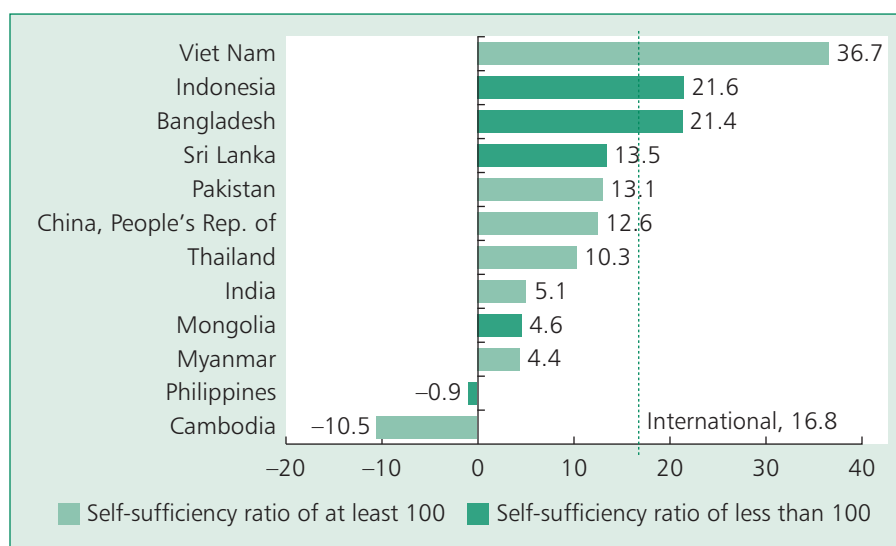
Transmission of Global Food Prices to Domestic Prices

As with the 2007–2008 episode, rising global food prices are getting transmitted into higher domestic food prices in developing Asian economies. But global prices are only one factor influencing local food prices. For countries that import food, the extent of transmission from global to domestic prices is dependent on the exchange rate, trade policy, other policy measures, and the speed of adjustment (ADB 2008b). For countries that are not heavily reliant on imports, market conditions—local crop conditions, supply

costs, and policy measures—are among the important determinants of domestic food prices (World Bank 2011a). For the poor, volatility in local food prices is more relevant than movements in global food prices, since the actual price they have to pay is the local price.

As Figures 5 and 6 show, domestic rice and wheat prices in many developing Asian economies are following the rise in international grain prices. In some cases, the hike in domestic prices in

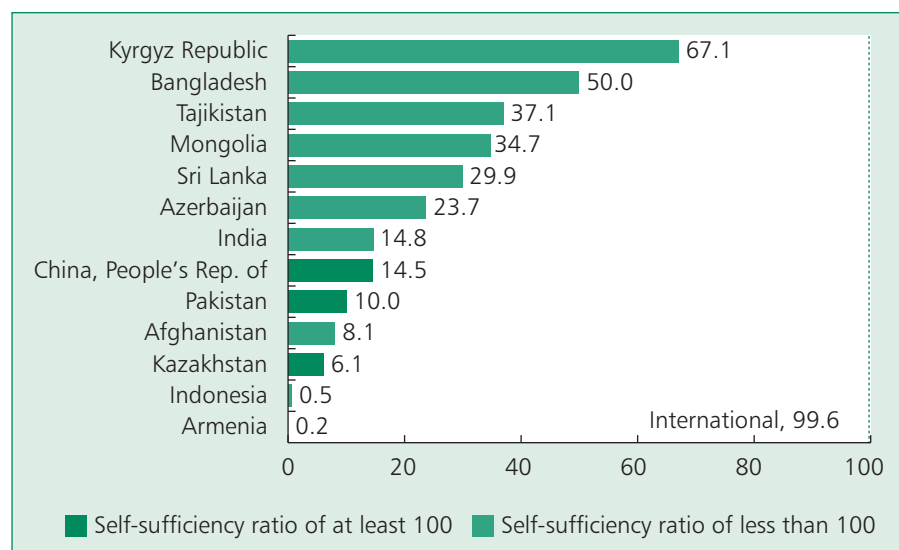
Figure 5 Increase in Domestic Retail Prices of Rice since June 2010 (%)



Note: Self-sufficiency ratio refers to production relative to domestic utilization (i.e., production/[production + imports – exports]). Ratios refer to the 10-year average from crop years 2001/2002–2010/2011. Changes refer to June–October 2010 for Myanmar; June–November 2010 for the Philippines; June–December 2010 for Thailand; June 2010–January 2011 for Cambodia, Indonesia, and Mongolia; and June 2010–February 2011 for Bangladesh, the People's Republic of China, India, Pakistan, Sri Lanka, and Viet Nam.

Sources: ADB staff calculations using FAO, Global Food Price Monitor. www.fao.org/giews/pricetool (accessed 1 March 2011). Foreign Agricultural Service, United States Department of Agriculture. www.usda.gov (accessed 2 February 2011).

Figure 6 Increase in Domestic Retail Prices of Wheat since June 2010 (%)



Note: Self-sufficiency ratio refers to production relative to domestic utilization (i.e., production/[production + imports – exports]). Ratios refer to the 10-year average from crop years 2001/2002–2010/2011. Changes refer to June–December 2010 for Kazakhstan and Tajikistan; June 2010–January 2011 for Armenia, Azerbaijan, Bangladesh, Indonesia, and Mongolia; and June 2010–February 2011 for Afghanistan, the People's Republic of China, India, the Kyrgyz Republic, Pakistan, and Sri Lanka.

Sources: ADB staff calculations using FAO, Global Food Price Monitor. www.fao.org/giews/pricetool (accessed 1 March 2011). Foreign Agricultural Service, United States Department of Agriculture. www.usda.gov (accessed 2 February 2011).

local currency terms is even outpacing the rise in international prices. For example, between June 2010 and February 2011, global rice prices increased by 16.8%. However, domestic rice prices since June 2010 went up by 21.4% in Bangladesh, 21.6% in Indonesia, and 36.7% in Viet Nam.² The increase in domestic rice prices was between 13.5% and 10.3% in Sri Lanka, Pakistan, the People's Republic of China (PRC), and Thailand; and between 5.1% and 4.4% in India, Mongolia, and Myanmar. In the Philippines, the domestic retail price of well-milled rice went down by 0.9% in local currency terms, because of existing rice price controls and the appreciation of the peso; and in Cambodia, the domestic rice price went down by 10.5%.

This is not the case for wheat. International wheat prices rose by 99.6% in the 8 months to February

2011, but domestic price increases in the region in local currency terms have generally not exceeded 70% since June 2010. In the Kyrgyz Republic, for instance, local wheat prices increased by 67.1%, while domestic prices in Bangladesh grew by 50%. In Tajikistan and Mongolia, local prices have risen between 30% and 40%; in Sri Lanka and Azerbaijan, the increase is between 20% and 30%; in India, the PRC, and Pakistan, the price hike ranged between 10% and 20%; while in Afghanistan, Kazakhstan, Indonesia, and Armenia, domestic price increases were less than 10%.

Rising domestic prices of rice, wheat, and other food items are contributing to food price inflation in many Asian countries. In recent months, food price inflation has reached double digits in Bangladesh, the PRC, India, Indonesia, the Republic

² In the case of Viet Nam, the increases in domestic rice prices despite good domestic harvests were primarily due to the depreciation of the currency, which has fuelled overall inflation and expectations of higher demand from large importers and led to the minimum rice export price being raised by the Viet Nam government (World Bank 2011b).

of Korea, Pakistan, Sri Lanka, and Viet Nam. Food price inflation is also rising in Hong Kong, China and Singapore. Since food carries large weight in the consumer price index (CPI) of many of the region's economies (Table 2), food price inflation is stirring up general inflation.

In the PRC, for instance, food inflation in January was recorded at 10.3%, accounting for 3.3 percentage

points of the 4.9% CPI inflation rate. Similarly, the 12.0% food inflation in the Republic of Korea contributed 1.7 percentage points to the overall inflation rate of 4.1% in January 2011. Inflation has again become troublesome for Viet Nam, where it reverted to double digits in November (11.1%), December (11.8%), and January (12.2%) in part due to food price increases of at least 15% during those months.

Table 2 Food Weights in Consumer Price Index (%)

Economy	Share	Economy	Share	Economy	Share
Bangladesh	58.84	Indonesia ^c	36.20	Singapore ^a	22.05
Cambodia ^a	44.78	Korea, Republic of ^a	14.04	Sri Lanka	45.50
China, People's Republic of ^b	30.20	Malaysia ^a	31.40	Taipei, China	26.08
Hong Kong, China	26.67	Pakistan ^b	40.34	Thailand ^a	33.01
India	46.19	Philippines	46.58	Viet Nam	39.93

^a Includes nonalcoholic beverages.

^b Includes beverages.

^c Includes beverages and tobacco.

Sources: Various national statistics websites.

Figure 7a Contributions to Consumer Price Index Inflation, January–June 2010 (percentage points)

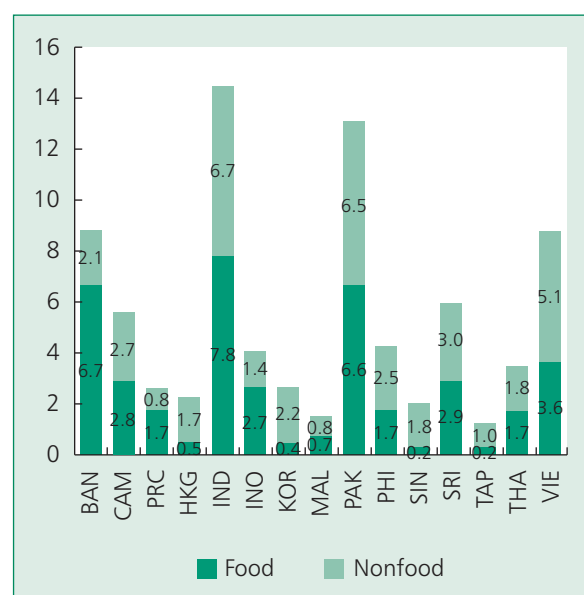
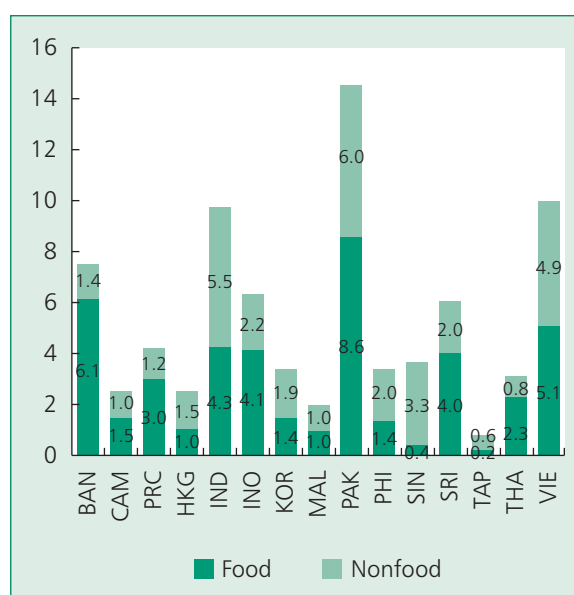


Figure 7b Contributions to Consumer Price Index Inflation, July 2010–latest (percentage points)



BAN = Bangladesh; CAM = Cambodia; PRC = People's Republic of China; HKG = Hong Kong, China; IND = India; INO = Indonesia; KOR = Republic of Korea; MAL = Malaysia; PAK = Pakistan; PHI = Philippines; SIN = Singapore; SRI = Sri Lanka; TAP = Taipei, China; THA = Thailand; VIE = Viet Nam.

Sources: ADB staff calculations using data from CEIC Data Company, Ltd. and various national government sources.

For many regional economies, the contribution of food to total consumer price inflation has been rising in tandem with the increase in global commodity prices. Figures 7a and 7b show a comparison of the average sources of inflation during the first half and the second half of 2010, respectively, in a sample of economies in developing Asia. Average food

inflation became a larger source of inflation in most regional economies in the second than in the first half of the year, except in Bangladesh, Cambodia, India, and the Philippines. In Cambodia and the Philippines, this is not surprising since Figure 5 shows that the increase in international rice prices has not been transmitted to domestic prices.

Food Price Near-Term Outlook

According to the Food and Agriculture Organization (FAO) of the United Nations (FAO 2010a), global crop inventories, especially of cereal crops, are expected to fall this year on account of stock drawdowns last year. Production in 2011 will therefore be crucial in determining stability in global markets. The FAO estimates that global cereal production would have to rise by 2%, particularly for corn and wheat, to match the utilization requirements for 2011/2012 and avert further stock drawdowns on existing inventories.

The FAO (2010b) also warns that 29 countries in Africa, Asia, Middle East, and Latin America and the Caribbean would need external food assistance. Among ADB's developing member countries, the FAO lists Afghanistan, the Kyrgyz Republic, and Pakistan as among those that will face severe localized food insecurity in part due to factors such as social unrest and ethnic conflicts in the first two countries, and the lingering effects of severe flooding in the latter. Cambodia and Lao People's Democratic Republic also face unfavorable prospects for current crops due to delayed and erratic rains.

Therefore, a continuing trend of high and volatile food prices is likely in the short term. The

international price of wheat is expected to remain high, exacerbated by the ongoing drought in the major wheat-producing belt in the People's Republic of China and extremely low global carryover stocks. Winter plantings in major producing countries of the Commonwealth of Independent States are also lagging and unfavorable weather in the United States is hampering early crop development. Prices of corn and soybean are likewise expected to rise, with the continued increase in demand for feeds and biofuel.

For rice, temporary tightness of export supplies resulting from crop destruction brought about by flooding have raised prices in Asia in recent months despite the general decline in domestic coarse grain prices in developing countries. Rice prices in many Asian countries could continue to follow an upward trend due in part to reduced projections of rice harvest as the effects of the La Niña weather condition persist. Moreover, tighter supplies of high quality wheat could lead consumers to substitute rice for the higher priced wheat, putting additional pressure on global rice prices. Nevertheless, these pressures could be somewhat tempered by the expected good harvest in and reduced imports by the Philippines this year.

Effects of High and Rising Commodity Prices

Impact on Gross Domestic Product Growth

The year-on-year increase in global food prices reached 34.2% in February 2011. At the same time, the price of Brent crude oil has been going up, rising by 39.9%. As noted earlier, these movements in international prices have begun to be reflected in domestic prices in developing Asian economies—the nearly 30% increase in global food prices in January has translated to an average of about 10% food inflation in a number of regional economies. Rising food inflation has resulted in hikes in general inflation rates, and it is expected that these will have impacts on the performance of the broader economy. This report uses the Oxford Economics global model to assess such impacts.³

The Oxford Economics global model generates projections of key economic variables for a sample of 10 developing Asian economies.⁴ The model assumes that monetary authorities in the region will adopt a gradual tightening stance in the next 2 years as recovery takes firm hold. Using this model, we trace the impacts on developing Asia of the continued rise in commodity prices. Two global commodity price scenarios were adopted to simulate the effects on gross domestic product (GDP) growth of the 10 regional economies. In the first scenario, international food prices are assumed to move upward through 2011. Worldwide food prices have risen by an average of 31.2% in the first 2 months of 2011 compared to year-ago levels. For Scenario 1, therefore, we look at the effects of a 30% average increase in the global prices of food in 2011 from the 2010 level. Assuming that the food price shock is temporary, in 2012, we revert to the

rate of change currently assumed in the model (i.e., a 5.0% decline).

In the second scenario, the international price of Brent crude oil is assumed to rise as well in 2011 on top of the assumed hike in global food prices in Scenario 1. Increases in global Brent crude oil prices are relevant in analyzing food price shocks because movements in input costs such as fertilizer prices, irrigation with diesel pumps, and general transport costs closely follow those for energy prices. For Scenario 2, the increases in both global food and Brent crude oil prices are assumed to reach 30% this year on average. We consider this a plausible scenario since both international prices of food and Brent crude oil have risen by more than 30% in the first 2 months of 2011. We then keep the currently assumed rates of change in the model for food and Brent crude oil prices in 2012 (i.e., a 5.0% decline for food and 3.1% decline for Brent crude oil). We compare the results of these two scenarios with a baseline that maintains the global prices of food and Brent crude oil in 2011 and 2012 to the average levels recorded in 2010.

The simulation results from Scenario 1 suggest that increases in global food prices would lead to higher inflation and slower economic expansion in developing Asia. Net food importers are expected to be hardest hit by the international commodity price inflation. Singapore, for instance, is highly vulnerable to inflationary pressures because the absence of a domestic agriculture sector makes it completely reliant on the global food market. Inflation is also expected to rise in countries with a large share of food in the consumer price index.

³ www.oxfordeconomics.com/OE_FA_Display_Frm.asp?Pg=GlobMod&Txt=Economic%20Models

⁴ These include economies from Developing Asia, as follows: People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei, China; and Thailand. By ADB's definition, Developing Asia consists of ADB's developing member countries.

In contrast, the estimated impact on inflation in the Republic of Korea is small because of the relatively low weight of food in its consumer price index (Table 2).

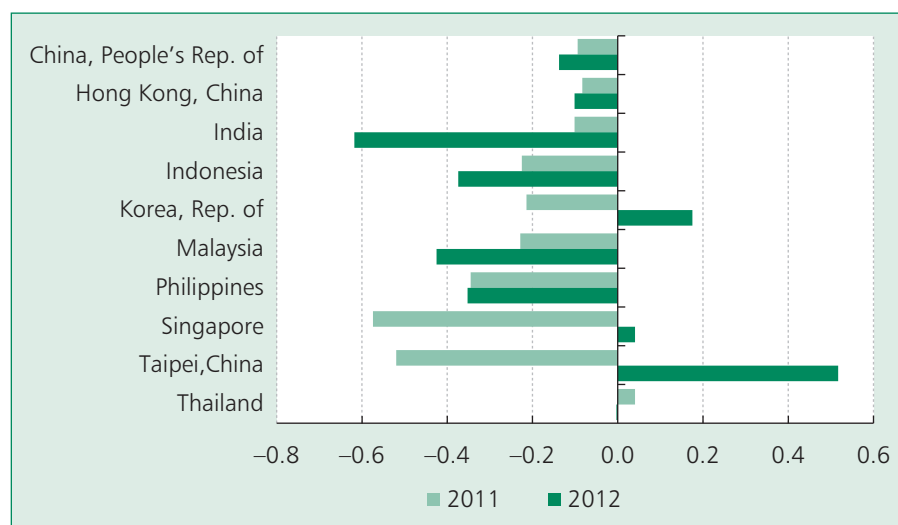
As consumer prices increase, the Oxford Economics global model allows governments to raise policy rates to prevent domestic inflation from rising uncontrollably. Higher interest rates are projected to pull down investment rates, and higher consumer prices are expected to crimp private consumption. The combined effects of these two forces are estimated to bring down GDP growth for some food-importing countries by up to 0.6 percentage points this year (Figure 8).

Economic expansion in Singapore is estimated to contract the largest in 2011—by 0.6 percentage points—on account of the expected steep declines in its private consumption and fixed investment growth. In contrast, the increase in global food prices is expected to slightly raise GDP growth for food-exporting Thailand. In 2012, GDP growth in the Republic of Korea, Singapore, and Taipei, China is estimated to moderately rise on the back of

the assumed decline in global food prices. Note that for a number of economies, the impacts on GDP growth are stronger in 2012 compared to 2011, as the model takes time to adjust to the exogenous shock in food prices. In India, Indonesia, and Malaysia, in particular, the adverse effects of the increase in global food prices in 2011 tend to take a larger toll on GDP growth in 2012 rather than in 2011.

Under Scenario 2, with international food and Brent crude oil prices both rising by 30% in 2011 and moderately falling in 2012, the impacts on inflation are much larger, particularly because consumer prices for fuel tend to move with global oil prices. The impacts on GDP growth are also more pronounced, with an estimated decline of up to 1.5 percentage points this year (Figure 9). Singapore is expected to suffer the largest slowdown of about 1.5 percentage points in 2011 and 0.8 percentage points in 2012. GDP growth in the Philippines is also estimated to slow down significantly, by 1.2 percentage points in 2011 and 0.9 percentage points in 2012 since the country is a large net importer of both food and Brent crude

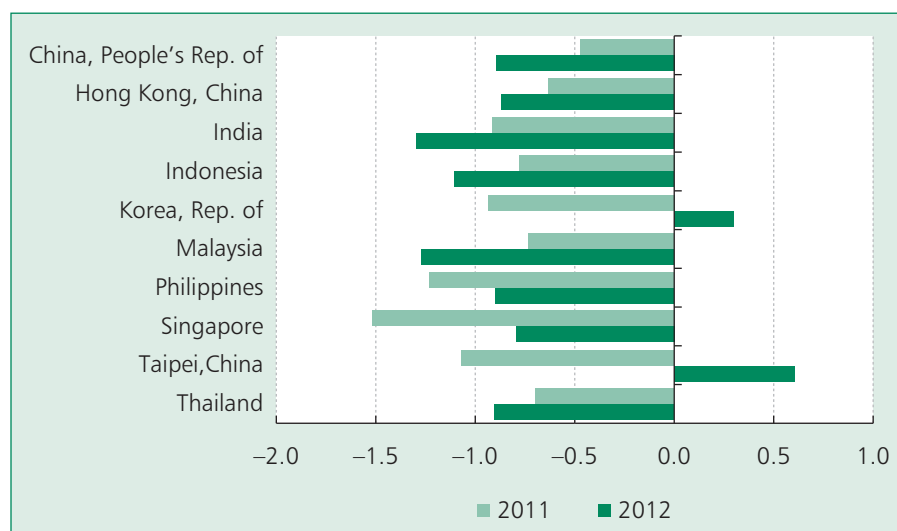
Figure 8 Changes in GDP Growth Rates Due to a 30% Increase in Global Food Prices in 2011
(percentage points)



GDP = gross domestic product.

Source: ADB staff calculations using the Oxford Economics global model (February 2011).

Figure 9 Changes in GDP Growth Rates Due to a Combined 30% Increase in Global Food and Oil Prices in 2011
(percentage points)



GDP = gross domestic product.

Source: ADB staff calculations using the Oxford Economics global model (February 2011).

oil. Unlike in Scenario 1, Thailand is also expected to experience a deceleration in its GDP growth in 2011 and 2012, suggesting that the negative impact of the rise in Brent crude oil prices outweighs the positive effect of the rise in food prices.

Larger hikes in global commodity prices are expected to result in even bigger impacts on GDP growth in developing Asian economies. For illustrative purposes, we trace the impacts of a 50% rise in global food prices in 2011 and find that GDP growth in food-importing countries in the region could fall by up to 1.2 percentage points in 2011. When both international prices of food and Brent crude oil increase by 50% this year, GDP growth could decline by up to 2.8 percentage points. These results assume that central banks adjust policy rates in response to the rise in inflation rates.

Impact on Poverty

Concerns over high prices are mounting because inflation erodes the purchasing power of households, especially those with low incomes, and could undermine poverty reduction and human

development gains achieved over the last decade or so. Many who were poor before the price increases may now be on the verge of hunger and malnutrition, and those who were barely above the poverty line may have slipped back into poverty. In this context, it is important to examine the impact of rising food prices on poverty.

The average household in the developing world spends roughly half of its total budget on food. This suggests that among households living below the poverty line, food expenditure will be an even greater portion of expenditures. Indeed, poor households allocate more than 60% of total household consumption to food. Developing countries in Asia and the Pacific are no exception: households with daily per capita consumption of less than \$1.25 at 2005 purchasing power parity spend 60%–70% of their total budget on food. Therefore, an increase in food prices will significantly lower consumer purchasing power, especially among the poor.

Table 3 presents the estimates of the impact of higher food prices on poverty for a group of 25 developing countries in the region, accounting

Table 3 Impact of Domestic Food Price Increase on Poverty for Developing Asia

	Poverty before Price Increase	Poverty after Food Price Increase by		
		10%	20%	30%
<i>Based on \$1.25-a-day poverty line</i>				
Percentage of poor (%)	27.1	29.0	30.9	32.9
Change in percentage of poor (percentage points)		1.9	3.9	5.8
Number of poor (in millions)	903	968	1,032	1,097
Change in number of poor (in millions)		64.4	128.8	193.2
Poverty gap ratio (%)	6.79	8.15	9.51	10.86
Change in poverty gap ratio (percentage points)		1.4	2.7	4.1

Note: The estimates of poverty impact have been derived using the price elasticity of poverty, which indicates the percentage increase in poverty when food prices increase by 1%. This elasticity was estimated for both headcount ratio and poverty gap ratio for each of the 25 countries in Asia and the Pacific using the latest POVCAL database.

Source: ADB staff calculations based on the latest POVCAL database (accessed 18 February 2011).

for more than 3.3 billion people. The estimates of changes in poverty in the 25 individual countries due to an increase in food prices are also presented in Appendix 1. To assess the impacts, increases in domestic food prices of 10%, 20%, and 30% are simulated. The simulation results in Table 3 are pure price effects, which assume that household nominal incomes do not change during the inflationary period.⁵ So the results only inform us of the immediate impact on poverty due to rising food prices.

A 10% rise in domestic food prices in developing Asia risks creating an additional 64.4 million poor people, or increasing the percentage of poor by 1.9 points. As noted earlier, global food prices have increased by more than 30% in the first 2 months of 2011, and domestic food inflation in the region has averaged about 10% for a number of regional economies. This implies that about one-third of the increase in global food prices gets transmitted to domestic food prices in developing Asia. This also

means that the estimated increase in the number of poor due to a 10% increase in domestic food prices may have already occurred in the region.⁶ The impact is even greater for a 20% and 30% increase, with the percentage of people living below \$1.25 per day increasing 3.9 percentage points and 5.8 percentage points, respectively. This means an additional 128.8 million and 193.2 million poor people, respectively.

So far, these estimates reflect the impact of higher food prices on those clustered around the poverty threshold of \$1.25-a-day poverty line. It should be pointed out, however, that such an impact on the so-called incidence of poverty or headcount ratio may not be able to capture the full impact. Higher food prices lower the living standards of those already living below the poverty line, not only those just above the threshold. In this respect, the “poverty gap ratio”—the product of headcount ratio and the income gap from the poverty line—is a better tool for capturing the impact. The price increases will

⁵ Household consumption of own-produced food may be trivial for this empirical exercise because a large majority of households even in rural areas depend mainly on purchased food. For example, a study by ADB (2008a) shows that the poverty impact of a 10% increase in rice prices is not much changed whether one adjusts for home production of rice or not.

⁶ The World Bank's (2011b) estimate that 44 million people have been pushed into extreme poverty due to higher prices of corn, wheat, and oil differs from the estimates in this paper because we considered food prices as a whole and not just prices of selected commodities.

not only increase the number of the poor, but also reduce the standard of living of households living in poverty even before the price increases. The poverty gap ratio captures both. The results show that an

increase in domestic food prices in developing Asia by 10%, 20%, and 30% will result in an increase of 1.4, 2.7, and 4.1 percentage points, respectively, in the poverty gap ratio.

Policies for Enhancing Food Security

The frequency with which food price spikes have occurred in recent years suggests that both short- and long-term solutions need to be implemented to secure food supplies for the world's growing population. Food prices have become highly volatile, and the Asian food system's vulnerability to price shocks and natural calamities has increased significantly.

Much of Asia's grain production areas remain unprotected against increasing threats of climate change and extreme weather events. Due to population pressures and growing demand for housing, many farmlands are also being converted to residential uses. Land resources are also being degraded through erosion, pollution, nutrition depletion, and salinization, with "dust bowls" being formed in northwest People's Republic of China (PRC), western Mongolia, and Central Asia. Further, a large number of small farmers remain highly vulnerable to external shocks as they continue to lack access to affordable finance, modern technologies, markets and market information, infrastructure, and other public services. Additionally, many irrigation systems in Asia are in dire need of investments for modernization and are highly inefficient in water use. Water crisis is foreseen to be a major challenge in the coming years as demand for water continues to increase not just to produce more food, but also to sustain cities and industries throughout Asia. It is projected that as much as 40% of developing Asia will face severe water shortage by 2030.

Short-Term Policy Responses

As with the food price crisis more than 3 years ago, developing economies in Asia are adopting different measures to deal with rising food and oil prices. A survey was conducted among ADB's developing member countries to determine the

types of domestic policies that have been adopted to deal with rising food prices. In particular, the policies were classified as: (i) food price stabilization (such as through removal or cuts in import taxes or value-added taxes, increases in buffer food grain stocks, export restrictions, or price controls and consumer subsidies); (ii) self-sufficiency programs (largely producer subsidies); and (iii) safety nets (such as targeted or conditional cash transfers, food-for-work programs, food aid programs, or feeding programs). Survey results suggest that governments have largely taken self-sufficiency measures rather than imposed trade restrictions to deal with the recent international food price hikes. Interventions were focused on raising food stockpiles, increasing consumer and producer subsidies, and stimulating production (Table 4). A more detailed list of national policy responses to address rising food prices is provided in Appendix 2.

As Table 4 shows, a number of developing Asian countries also run food-based safety net programs. While well-designed safety nets to secure food for the needy are important in the short to medium term, if prices continue to rise, the considerable costs of food subsidies make them unsustainable in the long run. Indeed, the International Monetary Fund (2008) estimated that for 43 net food importers, the rise in their average food bill from the 2007–2008 food crisis was 0.8% of their 2008 GDP.

Meanwhile, as a result of rising international food prices, some countries (such as the PRC; India; Indonesia; Republic of Korea; Malaysia; Taipei, China; and Thailand) are fighting inflation through tighter monetary policy while others are expected to follow suit. To the extent that inflationary pressures are supply-driven, as in 2007–2008, higher interest rates may be less effective in controlling it.

Table 4 Summary of National Measures to Address Rising Food Prices
(as of 16 February 2011)

Region/ Economy	Reduce Taxes	Increase Supply	Restrict Exports	Control Prices/ Subsidize Consumers	Cash Transfers	Food for Work	Food Aid	Feeding Programs	Stimulate Production
<i>Central Asia</i>									
AFG		✓					✓		✓
ARM						✓			✓
AZE	✓			✓					
GEO						✓	✓		✓
KAZ				✓	✓				
KGZ		✓			✓				
PAK	✓	✓	✓	✓			✓		
TAJ		✓		✓					
TKM	✓		✓	✓					✓
UZB				✓			✓	✓	✓
<i>East Asia</i>									
PRC		✓	✓*	✓	✓			✓	✓
MON	✓						✓		✓
<i>South Asia</i>									
BAN	✓	✓	✓	✓		✓	✓		✓
IND		✓	✓*	✓			✓	✓	✓
NEP		✓		✓					
SRI	✓	✓		✓					
<i>Southeast Asia</i>									
CAM		✓							✓
INO	✓						✓		✓
LAO	✓	✓		✓					✓
PHI				✓			✓		
THA		✓		✓					✓
VIE				✓					✓

AFG = Afghanistan, ARM = Armenia, AZE = Azerbaijan, BAN = Bangladesh, CAM = Cambodia, GEO = Georgia, IND = India, INO = Indonesia, KAZ = Kazakhstan, KGZ = Kyrgyz Republic, LAO = Lao People's Democratic Republic, MON = Mongolia, NEP = Nepal, PAK = Pakistan, PHI = Philippines, PRC = People's Republic of China, SRI = Sri Lanka, TAJ = Tajikistan, THA = Thailand, TKM = Turkmenistan, UZB = Uzbekistan, VIE = Viet Nam.

* Since 2008. Refer to the detailed table in Appendix 2.

Source: Collated from a survey on ADB's developing member countries and latest news reports.

Long-Term Policy Challenges

Demand for food from emerging markets continues to rise as their economies tread on to high-growth paths. The rapidly dwindling world food stock

position will not support such demand over the long term unless sustainable food production and supply-augmenting measures are implemented on a war footing. Raising crop yields and expanding cultivated area are necessary to achieve long-term food security.

For rice and wheat production, for instance, there is ample room for improving yields. Figure 10 shows that among the top 10 rice producers in the world, average yields between 2001/02 and 2010/11 exceed the global mean in only four countries—Japan, the PRC, Viet Nam, and Indonesia. Considering that the world average yield of 4.074 tons per hectare is less than half of the maximum yield of 9.883 tons per hectare achieved during the last decade by Egypt, the potential for raising rice production is tremendous. Indeed, if the yields in the six major rice-producing countries that are below the global mean could be raised to just the world average, global rice production would increase by 12.5%. If, however, yields of these six countries matched those of Egypt, worldwide rice production would expand by 167.3%.

The situation in global wheat production is even worse. Only two economies—the European

Union (27) and the PRC—surpassed the world average yield of 2.825 tons per hectare between 2001/02 and 2010/11 (Figure 11). New Zealand, meanwhile, recorded the maximum yield of 7.481 tons per hectare over the period. As with rice, there is a huge potential for raising global wheat production. If the eight top wheat producers would be able to increase their yields to match the global mean, total wheat production would be boosted by 12.3%. A more ambitious plan to raise their yields to New Zealand's standards, however, would increase global wheat production by a whopping 235.5%.

However, considering the agroecological differences as well as socioeconomic and political variations among countries, it may not be realistic to expect producers to be able to achieve maximum yields anytime soon. Moreover, yields attained in laboratories may be closer to biological potential

Figure 10 Yields for Top 10 Global Rice Producers
(tons per hectare)

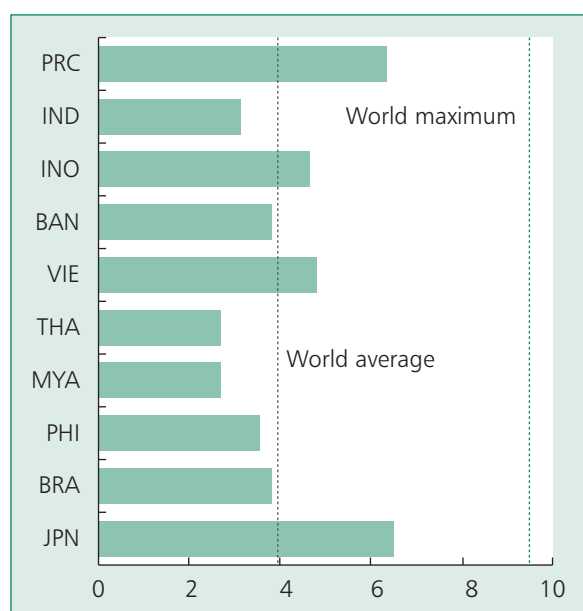
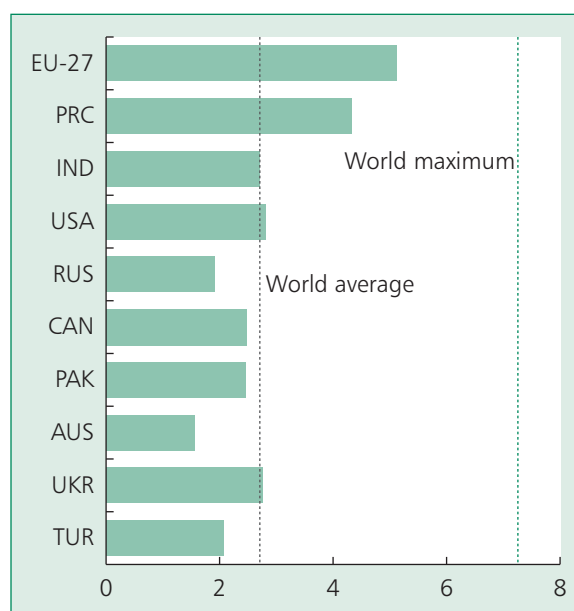


Figure 11 Yields for Top 10 Global Wheat Producers
(tons per hectare)



AUS = Australia, BAN = Bangladesh, BRA = Brazil, CAN = Canada, PRC = People's Republic of China, EU-27 = European Union 27, IND = India, INO = Indonesia, JPN = Japan, MYA = Myanmar, PAK = Pakistan, PHI = Philippines, RUS = Russian Federation, THA = Thailand, TUR = Turkey, UKR = Ukraine, USA = United States, VIE = Viet Nam.

Note: Economies are arranged according to average production in 2001/02–2010/11, with the PRC and EU-27 as top producers for rice and wheat, respectively. Yields also refer to the average in 2001/02–2010/11.

Source: Foreign Agricultural Service, United States Department of Agriculture. www.usda.gov (accessed 2 February 2011).

but the realities on the ground in actual farms may be quite different, making it difficult to reach the potential even with the use of best farming practices. The International Rice Research Institute (IRRI), for instance, noted that yield growth in rice would need to expand by an average of 1.2%–1.5% per year for the next 10 years for supply to keep abreast with growing demand. Such yield improvements will need to come from “quick gains”-type of investments (such as efficiency in nitrogen fertilizers or water, in which current application in Asia is 30%–50% below levels that can be used with good agronomic management practices), and the longer-type of research and development (such as improved varieties and value chains).

Bolstering agricultural productivity through research and development is extremely important as demand for food continues to expand. New farming techniques and crop varieties need to be developed and transferred to farmers to adapt to farming conditions that have increasingly become even more challenging, especially in the face of dwindling resources (such as agricultural land and water) and the adverse effects of climate change. Soil erosion, water scarcity, and uncertain weather patterns are causing greater instability in the production of food crops. In addition, policies are needed to encourage the entry of private investment in agricultural research and development that is science- and technology-based to boost efforts to create more resilient agricultural systems in the future and to benefit small farmers who are the major Asian producers.

India, for one, has recognized the importance of raising investment in agriculture to bolster productivity and keep food prices in check. To address deterioration in soil health, the government proposed the adoption of organic farming methods, combining traditional and modern farming practices. The government has also acknowledged that credit constraints could limit farmers’ ability to extract the maximum out of their land. Thus, in its budget for fiscal year 2011/12, the government committed to provide farmers with access to affordable credit through a 27% increase (to about \$105 billion) in its credit flow target to the agriculture sector and a hike in

the interest subsidy to farmers’ short-term crop loans from 2% to 3%.

Apart from investment in research and development to improve crop yields and make production systems more resistant to shocks, additional infrastructure investment is needed to address inefficiencies—such as deterioration in quality and postharvest losses due to poor storage facilities, ill-equipped milling and drying facilities, etc.—in food supply management and distribution. Key infrastructure investments may include (i) those that are productivity enhancing such as irrigation and water resource management; (ii) flood early warning systems; and (iii) market infrastructure such as farm-to-market roads, storage facilities, and information and communication technology for disseminating market information, e.g., use of mobile phones. Improvements in processing, storage, transport, and trade infrastructure are necessary to facilitate speedier responses to food supply disruptions. Private agents too must be encouraged to participate in marketing and investment through policy changes that reduce transaction costs for private traders. Better institutions likewise need to be developed to improve market information and to provide grading, labeling, and standardizing facilities.

Market integration should also be allowed by eliminating policy distortions that create hurdles in transferring food from surplus to deficit regions. Protectionist policies only exacerbate the global rise in food prices. If an increase in world prices is not transmitted to domestic markets, lower domestic prices would keep supply low and demand high. This would create an artificial scarcity, further aggravate world price rises and, in turn, impose rising fiscal costs of food subsidy. In view of the increased volatility in food and oil prices, it would do well for governments to revisit their policies relating to food and oil subsidies. General subsidies must be avoided and replaced with targeted subsidies that are better at addressing the needs of the most vulnerable groups. In addition, restrictive trade policy interventions can be ineffective at stabilizing domestic prices (Martin and Anderson 2010). Open and increased trade, perhaps through the Doha Round, is a policy option for mitigating

the effects of higher commodity prices on ADB's developing member countries. Reduction of tariffs can moderate price increases by lowering inefficient trade distortions.

Pressures on world prices of most commodities are not likely to ease anytime soon. The international community must thus be prepared for further supply shocks in the near term. France, chairing the G20 this year, has rightfully put food price volatility on its priority agenda. The World Bank has rated high food prices as "the biggest challenge facing most developing countries." It has urged the G20 to take "practical and interconnected" actions to control commodity price volatilities, including an improved understanding of the relationship between international and local prices, aversion to export bans, effective social safety nets, public

access to information on grain stocks, better weather forecasting, and fast-disbursing aid.

To allay fears of food insecurity, it is important to calm down speculative activities in food markets and to avoid alarmist policies. In this context, the agreement reached by leaders of the 10-member Association of Southeast Asian Nations (ASEAN)⁷ plus the PRC, Japan, and the Republic of Korea at the end of October 2010 to establish a common and permanent emergency rice reserve system is noteworthy, involving business models for rice reserve management, market information and intelligence, and facilitating rice trade with the ASEAN Trade in Good Agreement. Efforts to stabilize food prices must take center stage. Otherwise, the riots that are occurring in the Middle East and North Africa may spread to other parts of the world.

⁷ Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam.

Conclusion

In the second half of 2010, world food prices commenced their rapid ascent. By February 2011, a new peak was recorded, with global food prices rising by more than 30% year-on-year in the first 2 months of 2011, underpinned by large increases in the prices of cereals, edible oils, and meat. The price increases were largely triggered by production shortfalls due to bad weather. However, subsequent export bans introduced by several countries and market responses to fears that key importing countries would raise demand added to the international price pressures.

Structural and cyclical factors that were at play during the 2007–2008 food crisis continue to be relevant in the current high food price episode. Structural factors include rising demand due to rising populations; higher incomes from emerging economies; changing diets; competing use of foodgrains for biofuel production; and falling supply due to stagnant or declining crop yields, diversion of agricultural land, rising water scarcity, increasing input costs, and lack of agricultural investment. Cyclical factors include strong recovery in emerging economies, US dollar weakness, speculative activities, and rising oil prices.

The main difference between the current food price rise and the 2007–2008 food price crisis is the relatively moderate hike in current rice prices. Nevertheless, increases in the international prices of rice and wheat—the two key staples produced and consumed in developing Asia—together with increases in other domestic food items, have translated to an average domestic food price inflation in January 2011 of about 10% in the region.

Variations, however, exist in the extent of transmission from global to domestic prices. For countries that are not too dependent on imports, local market conditions are more relevant in

determining domestic prices. For import-reliant countries, the important factors influencing local prices are global prices, exchange rates, trade and other policies, and the speed of transmission.

In the short term, a continuing trend of high and volatile food prices is likely. Grain carryover stocks have been falling as production has been unable to meet utilization requirements. Supply uncertainties are also rising due to extreme weather disturbances. International wheat prices are expected to remain high due to projected supply shortfalls in the PRC, the Commonwealth of Independent States, and the United States. Rice prices could also continue its uptrend as the effects of La Niña persist and consumers substitute rice for higher-priced wheat.

Rising global food prices are expected to affect growth and poverty incidence in developing Asia. Simulation results suggest that if a 30% increase in global food prices persists throughout 2011, GDP growth for some food-importing countries in the region could be choked off by up to 0.6 percentage points. If a 30% increase in world oil prices is added on top of the 30% increase in global food prices, GDP growth could be reduced by up to 1.5 percentage points compared with the baseline scenario where food and oil price hikes do not occur. Considering that both international prices of food and crude oil have risen by more than 30% in the first 2 months of 2011, such possibilities are real and cannot be ignored.

Concerns over high prices are rising because inflation erodes the purchasing power of households and could undermine the poverty reduction and human development gains achieved over the last decade or so. Simulation results suggest that a 10% rise in domestic food prices in developing Asia (home to 3.3 billion people) could push an

additional 64.4 million into poverty, or lead to a 1.9 percentage point increase in poverty incidence based on the \$1.25-a-day poverty line.

Food production targets can no longer be set in isolation from wider consideration of the competing needs for water from other sectors. The frequency with which food price spikes have occurred in recent years suggest that short- and long-term solutions need to be implemented to secure food

supplies for the world's growing population. In the short term, Asian governments have resorted to measures aimed at reducing domestic food prices, reinforcing safety net programs, and stimulating production responses. In the long term, measures such as improvements in productivity, increases in agricultural investment, stronger market integration, targeting subsidies to the poor, and global and regional cooperation must take center stage.

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Appendix 1

Impact of Food Price Increases on Poverty for 25 Developing Asian Countries, \$1.25-a-day poverty line

	Change in Percentage of Poor (in percentage points) with an Increase in Food Prices by			Change in Number of Poor (in millions) with an Increase in Food Prices by		
	10%	20%	30%	10%	20%	30%
Armenia	0.7	1.4	2.1	0.02	0.04	0.06
Azerbaijan	0.0	0.0	0.0	0.00	0.00	0.00
Bangladesh	2.5	5.0	7.5	3.83	7.65	11.48
Bhutan	1.8	3.5	5.3	0.01	0.02	0.03
Cambodia	2.3	4.5	6.8	0.31	0.63	0.94
China, People's Republic of—Rural	2.2	4.3	6.5	16.47	32.95	49.42
China, People's Republic of—Urban	0.2	0.5	0.7	1.31	2.62	3.93
Georgia	1.1	2.1	3.2	0.05	0.10	0.14
India—Rural	2.9	5.8	8.8	22.82	45.64	68.45
India—Urban	2.1	4.3	6.4	6.68	13.36	20.04
Indonesia—Rural	2.4	4.8	7.2	2.76	5.52	8.27
Indonesia—Urban	1.6	3.2	4.8	1.70	3.39	5.09
Kazakhstan	0.2	0.4	0.6	0.03	0.06	0.09
Kyrgyz Republic	1.8	3.7	5.5	0.09	0.19	0.28
Lao People's Democratic Republic	2.5	5.1	7.6	0.14	0.29	0.43
Malaysia	0.1	0.2	0.3	0.03	0.05	0.08
Mongolia	1.8	3.6	5.4	0.05	0.09	0.14
Nepal	2.0	4.1	6.1	0.55	1.10	1.65
Pakistan	2.2	4.5	6.7	3.47	6.94	10.41
Papua New Guinea	1.7	3.4	5.1	0.10	0.21	0.31
Philippines	1.6	3.2	4.9	1.37	2.75	4.12
Sri Lanka	1.2	2.4	3.6	0.24	0.47	0.71
Tajikistan	1.8	3.6	5.4	0.12	0.23	0.35
Thailand	0.1	0.2	0.2	0.05	0.10	0.15
Timor-Leste	2.2	4.4	6.7	0.02	0.04	0.07
Turkmenistan	1.1	2.2	3.3	0.05	0.11	0.16
Uzbekistan	2.3	4.5	6.8	0.59	1.19	1.78
Viet Nam	1.9	3.7	5.6	1.55	3.10	4.65
<i>Developing Asia</i>	1.9	3.9	5.8	64.41	128.83	193.24

Note: The estimates of poverty impact have been derived using the price elasticity of poverty, which indicates the percentage increase in poverty when food prices increase by 1%. This elasticity was estimated for both headcount ratio and poverty gap ratio for each of the 25 countries in Asia and the Pacific using the latest POVCAL database.

Source: ADB staff calculations using the latest POVCAL database (accessed 18 February 2011).

Appendix 2

National Policies to Address Rising Food Prices (as of 16 February 2011)

Region/ Country	Domestic Food Price Reduction (trade and stock)			Safety Net Programs (consumption)				Stimulate Response (production)	
	Reduce Taxes (import duties, VAT) on Food	Increase Supply Using Buffer Food Grain Stocks	Export Restriction	Price Controls/ Consumer Subsidies	Cash Transfer (targeted/ conditional)	Food for Work	Food Aid (ration/ stamp)		Feeding/ Nutrition Programs (school feeding)
Central Asia									
AFG*		✓ 70,000 tons of grain reserve. 200,000 tons of grain import of grain import planned (funding source unidentified)					✓ Food support targeted at vulnerable population (financed by donors)		✓ Input subsidies (financed by donors)
ARM ^a						✓ Targeted family benefit program			✓ Subsidy for irrigation water tariff
AZE	✓ VAT and import duties exempted for wheat and other food items until Aug 2011	(–) A law for the establishment of a wheat reserve passed in 2009, but not yet implemented		✓ Food subsidies that target vulnerable population					

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Table continued

Region/ Country	Domestic Food Price Reduction (trade and stock)				Safety Net Programs (consumption)				Stimulate Response (production)
	Reduce Taxes (import duties, VAT) on Food	Increase Supply Using Buffer Food Grain Stocks	Export Restriction	Price Controls/ Consumer Subsidies	Cash Transfer (targeted/ conditional)	Food for Work	Food Aid (ration/ stamp)	Feeding/ Nutrition Programs (school feeding)	
GEO ^b		(–) Substantial amount reserved (3-month consumption equivalent)				✓ Targeted social assistance program for 145,000 households	✓ Untargeted food coupons from Mar 2011		✓
KAZ ^c (#8 wheat exporter)				✓ Ceiling placed for various food items	✓ Targeted social protection to maintain a minimum subsistence level for low-income households				
KGZ [*]	(–) Import duties for food items unchanged	✓ Flour release for the vulnerable planned in 1st Q 2011. The government needs to increase grain purchase this year			✓ Monthly pension payments for vulnerable groups				
PAK ^{*,**} (#3 rice exporter)	✓ Duty-free import of sugar; tax reduction for sugar continues	✓ Wheat reserve soared due to good harvest. No release planned	✓ Ban on onion export to India (wheat export ban removed in Dec 2010)	✓ Subsidized food sold through state- owned stores. Wheat price controlled			✓		

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Table continued

Region/ Country	Domestic Food Price Reduction (trade and stock)				Safety Net Programs (consumption)				Stimulate Response (production)
	Reduce Taxes (import duties, VAT) on Food	Increase Supply Using Buffer Food Grain Stocks	Export Restriction	Price Controls/ Consumer Subsidies	Cash Transfer (targeted/ conditional)	Food for Work	Food Aid (ration/ stamp)	Feeding/ Nutrition Programs (school feeding)	
TAJ		✓ About 200,000 tons of grain imported for reserve in Nov 2010. The flour reserve was released at a lower price in Feb 2011		✓ Attempts to control retail food prices, but not successful					
TKM	✓		✓ Export ban for meat, fish, flour, and other food items	✓ Price control and import subsidies for food items					✓ Input subsidies, tax exemptions, soft lending for food processing industries
UZB	(-) Import tariff of 30% for wheat unchanged			✓ Subsidy on bread; price control on vegetable oil and sugar			✓ Food benefits targeted at single, old persons, and irregularly distributed through Makhalla system	✓ Effective child and maternity malnutrition program in place	✓ Input subsidies for wheat production

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Table continued

Region/ Country	Domestic Food Price Reduction (trade and stock)			Safety Net Programs (consumption)				Stimulate Response (production)	
	Reduce Taxes (import duties, VAT) on Food	Increase Supply Using Buffer Food Grain Stocks	Export Restriction	Price Controls/ Consumer Subsidies	Cash Transfer (targeted/ conditional)	Food for Work	Food Aid (ration/ stamp)		Feeding/ Nutrition Programs (school feeding)
East Asia									
PRC		✓ ^d Dec 2010: Current grain reserve of about 200 million tons; Feb 2011: Despite the drought impacts, no plan to increase wheat import	✓ Temporary export quota for wheat, corn, and rice flour since 2008	✓ Retail prices of agricultural commodities are capped by the government; temporary food subsidies for targeted groups in Nov 2010				✓ Cash incentive, subsidy for production supplies, and a 10-point plan for drought including \$12 billion irrigation investments	
MON*	✓ Gradual reduction of import duties planned for food items	(-) No additional release planned other than annual release of food stocks					✓ Food stamps targeted at 25,000 vulnerable civilians		✓ Cash incentive, tax cuts, and subsidized loans for production and food retailers
South Asia									
BAN	✓ VAT reduction for edible oil	✓ For rice reserve, 120,000 tons of rice imported during 1st Q 2011	✓ Dec 2009 rice export ban; Feb 2011 sugar export ban	✓ Subsidized credit for food imports		✓	✓ Up to 1 million tons of rice to be imported for the program		✓ Input subsidies and subsidized credit

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Table continued

Region/ Country	Domestic Food Price Reduction (trade and stock)			Safety Net Programs (consumption)				Stimulate Response (production)	
	Reduce Taxes (import duties, VAT) on Food	Increase Supply Using Buffer Food Grain Stocks	Export Restriction	Price Controls/ Consumer Subsidies	Cash Transfer (targeted/ conditional)	Food for Work	Food Aid (ration/ stamp)		Feeding/ Nutrition Programs (school feeding)
IND (#4 rice exporter)		✓ ^e Some release of ample wheat reserve reported. As of Feb 2011, wheat reserve is at 19.4 million tons, rice reserve at 27.8 million tons	✓ ^e Export ban for rice (since 2008) and wheat (since 2007). Onion export ban lifted but minimum export price. Sugar export under quota	✓ At fair price shops, minimum support price for 24 major crops			✓	✓ School feeding program	✓ Input subsidies
NEP		✓ 100,000 tons of rice import planned (WFP- financed). Release of 30,000 tons of rice planned for food- deficit mid- and far-western areas		✓ Subsidized food items at fair price shops					
SRI	✓ Reduced import duties for milk powder	✓ Imported chicken, eggs, onions, and coconut to add to the reserve during the last 3 months		✓ Non-targeted subsidies through Cooperative Seasonal Price Control for Festivities					

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Table continued

Region/ Country	Domestic Food Price Reduction (trade and stock)			Safety Net Programs (consumption)				Stimulate Response (production)	
	Reduce Taxes (import duties, VAT) on Food	Increase Supply Using Buffer Food Grain Stocks	Export Restriction	Price Controls/ Consumer Subsidies	Cash Transfer (targeted/ conditional)	Food for Work	Food Aid (ration/ stamp)		Feeding/ Nutrition Programs (school feeding)
Southeast Asia									
CAM**		Plan to establish food reserve (ADB). A small reserve by a state- owned enterprise exists							✓ Feb 2010: \$310 million allocation for rice irrigation systems over the next 2 years
INO (#4 rice importer)	✓ Suspended import duties for 57 key commodities						✓ Rice for the poor (Raskin) for 17.5 million households		✓ Wheat production cash incentive, tax exemption for production supplies
LAO**	✓ Tariff reduction for fertilizer	✓ Rice reserve of 30,000 tons in Aug–Sep 2010. Some released, but limited impact on domestic rice price		✓ Prices of rice, meat, and poultry controlled by internal trade department. Controls added for 15 goods including fuel, rice, and cement					✓ Tax cuts and subsidized credit for farmers. Incentives for investments in irrigations, small and medium enterprises, input supply, public–private partnerships, foreign direct investment

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Region/ Country	Domestic Food Price Reduction (trade and stock)				Safety Net Programs (consumption)				Stimulate Response (production)
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PHI (#1 rice importer)		(-) Given the ample rice stock of 3.42 million tons (30.5% increase year-on-year) and good harvest, no plan to increase reserves. The government plans to cut rice imports in 2011 by half from 2.5 million tons in 2010		✓ ¹ The NFA monopolizes rice imports, and guarantees a minimum rice purchase price, although no interventions due to stable rice price			✓ Rice price subsidy program (over 70% of public social protection expend- itures, yet only 46% of beneficiaries are considered poor, and only 24% of poor households have access)		
THA (#1 rice exporter)		✓ Rice reserve reduced to 1 million ton from 5 million tons during 2009–2010		✓ Prices of food items are controlled, including egg and palm oil					✓ Price guarantee scheme for rice

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Table continued

Region/ Country	Domestic Food Price Reduction (trade and stock)			Safety Net Programs (consumption)				Stimulate Response (production)	
	Reduce Taxes (import duties, VAT) on Food	Increase Supply Using Buffer Food Grain Stocks	Export Restriction	Price Controls/ Consumer Subsidies	Cash Transfer (targeted/ conditional)	Food for Work	Food Aid (ration/ stamp)		Feeding/ Nutrition Programs (school feeding)
VIE (#2 rice exporter)				✓ Temporary subsidy for food during Tet					✓ Exemption of land lease for construction of storage facilities for rice, corn, aquatic products, vegetable, and coffee

ADB = Asian Development Bank, AFG = Afghanistan, ARM = Armenia, AZE = Azerbaijan, BAN = Bangladesh, CAM = Cambodia, GEO = Georgia, IND = India, INO = Indonesia, KAZ = Kazakhstan, KGZ = Kyrgyz Republic, LAO = Lao People's Democratic Republic, MON = Mongolia, NEP = Nepal, NFA = National Food Authority, PAK = Pakistan, PHI = Philippines, PRC = People's Republic of China, SRI = Sri Lanka, TAJ = Tajikistan, THA = Thailand, TKM = Turkmenistan, UZB = Uzbekistan, VAT = value-added tax, VIE = Viet Nam, WFP = United Nations World Food Programme.

Note:

* Countries requiring external food assistance according to FAO (2010b).

** Countries facing unfavorable prospects for current crops according to FAO (2010b).

^a Armenia relies on imports mainly from the Russian Federation for nearly two-thirds of its annual grain consumption (700,000 tons). The Russian Federation's export ban inevitably affected the country, where importers have been looking into grain markets in Bulgaria, Iran, Kazakhstan, and Ukraine. To increase domestic production, a national program of wheat seed growing has been approved.

^b Georgia imports roughly 90% of wheat consumption in the country.

^c Despite a significant drop in grain production in Kazakhstan in 2010, a total of 6.5 million tons of wheat supply as of January 2011 is considered enough to meet a monthly consumption of 220,000 tons, leaving room for export although the price is uncompetitive, reflecting high transport costs in the country.

^d In preparation for potential supply shortages of meat, vegetables, sugar, salt, dairy products, and other key goods, a draft measure on emergency management of food staples was prepared by the PRC Ministry of Commerce and disclosed for public comments until 2 March 2011. The measure aims to prevent severe shifts in prices and supply of daily necessities. The proposed measures include restriction of exports of daily necessities, special arrangements for imports, market selling of government reserves, increased reserves of food staples at the local governments' warehouses for supply capacity enhancement, assistance to key food producers in distribution and an emergency supply, the reporting requirement of officials to report any abnormal market movements, and a nationwide price inspection campaign in rural areas. In January, the National Development and Reform Commission fined retailers Carrefour and Wal-Mart Stores for what it said were deceptive pricing practices at some stores. It also fined a paper-making association in the eastern province of Zhejiang for price manipulation. Prices of agricultural commodity futures have gained even faster than retail prices, which are capped by the government. Wheat futures hit record levels recently.

^e Reflecting good harvests in 2011 and ample stock, the Government of India has lifted export restrictions to neighboring countries such as Bangladesh and Nepal on humanitarian grounds. Wheat exports had been banned since 2007. But given the record harvest expected for 2010/11 (81 million tons) and the substantial level of reserves (21 million tons) against buffer norm of 11 million tons, local governments are to increase lifting of wheat under open market sale to make space for the new crop. Sugar exports are restricted. Good harvest is expected for 2010/11 (24.5 million tons) from 19 million tons in 2009/10.

^f In the Philippines, the National Food Authority has allowed rice imports by the private sector in 2011.

Sources: Information collected from ADB's regional departments and latest news reports.

Global Food Price Inflation and Developing Asia

The specter of high commodity prices has recently reemerged, with global food prices registering a new peak in February 2011, triggered mainly by production shortfalls due to bad weather. The 30% hike in international food prices has translated to an average domestic food price inflation in developing Asia of about 10%. This could push an additional 64.4 million Asians into poverty, or lead to a 1.9 percentage point increase in poverty incidence based on the \$1.25-a-day poverty line. The frequency with which food price spikes have occurred in recent years suggests that short- and long-term solutions need to be implemented to secure food supplies for the world's growing population.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to two-thirds of the world's poor: 1.8 billion people who live on less than \$2 a day, with 903 million struggling on less than \$1.25 a day. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

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