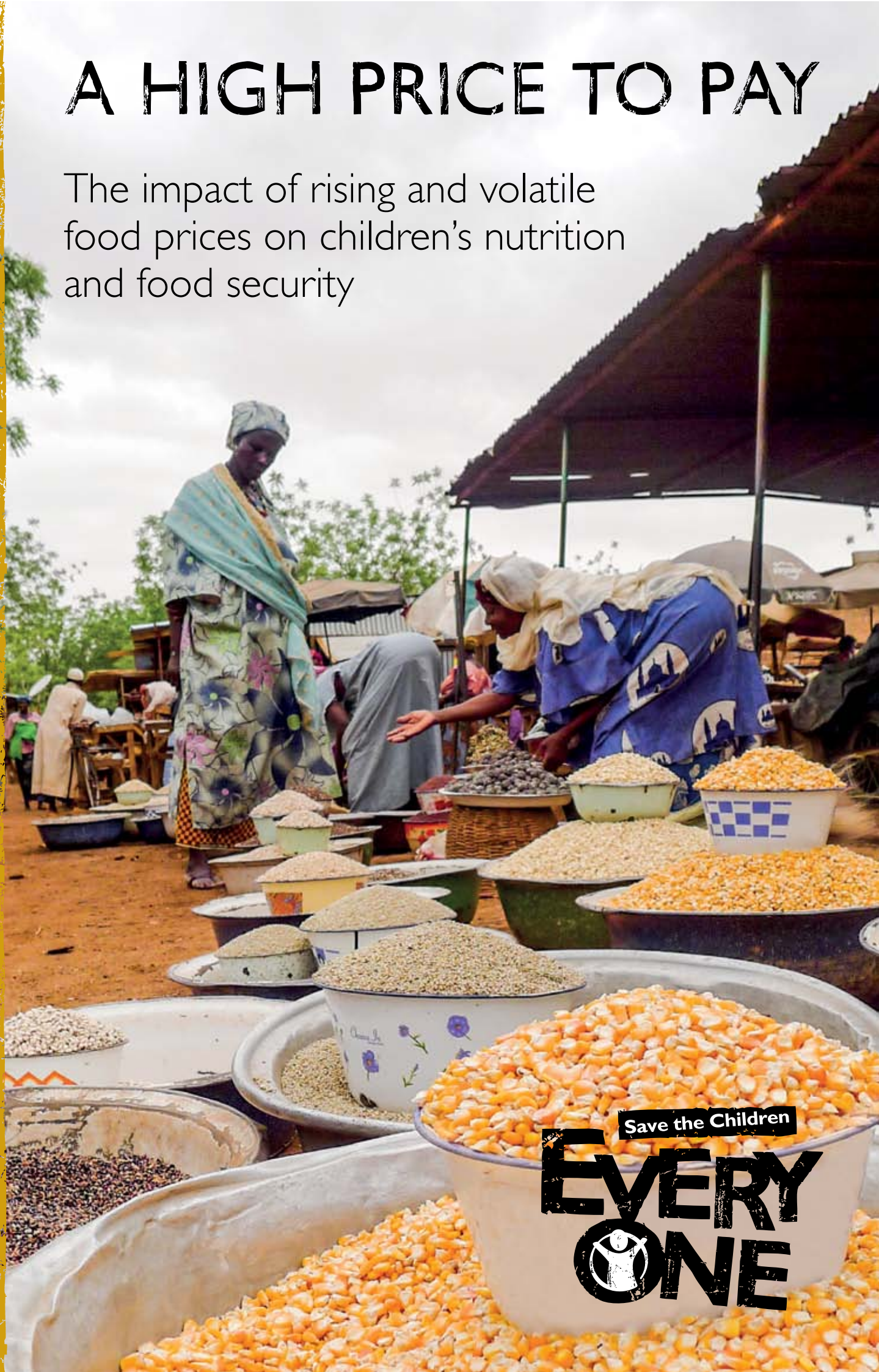
A HIGH PRICE TO PAY

The impact of rising and volatile food prices on children's nutrition and food security



Save the Children

EVERY ONE

A HIGH PRICE TO PAY

The impact of rising and volatile food prices on children's nutrition and food security

Save the Children

Save the Children works in more than 120 countries.
We save children's lives. We fight for their rights.
We help them fulfil their potential.

Acknowledgements

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Cover photo: A grain market in Burkina Faso (Photo: Save the Children)

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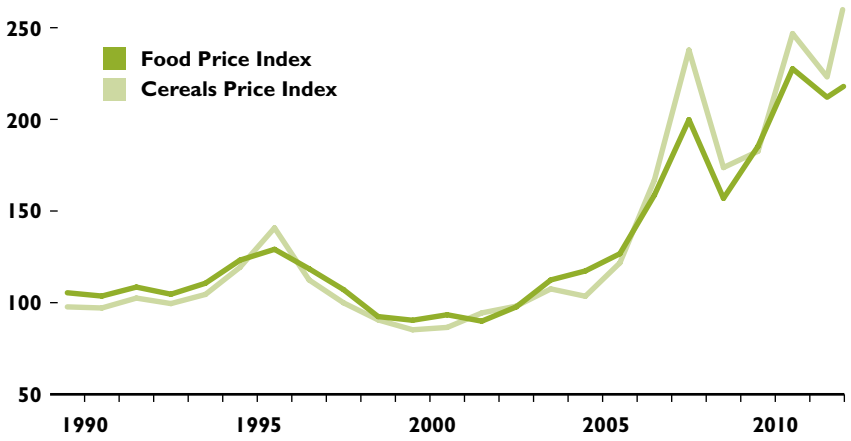

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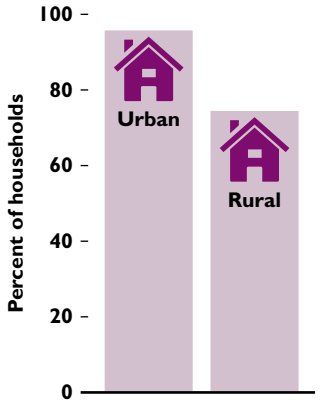

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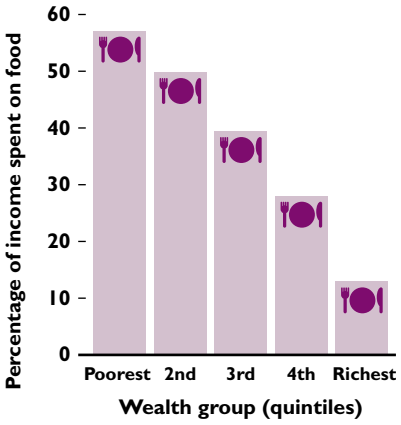

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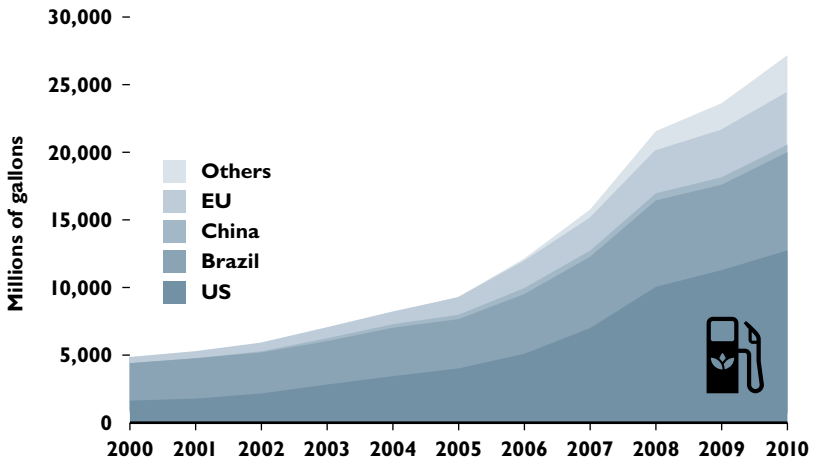

The growth in demand for biofuels is widely considered to be a key factor pushing up global food prices.

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It is estimated that the 18% increase in grain prices between April and July of 2012 could have added $8bn to the import bill of low-income countries.

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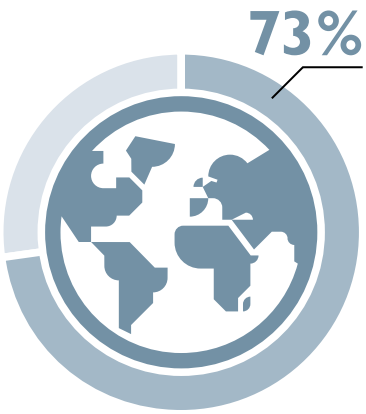

73% of low-income countries are net food-importers and so are highly vulnerable to food price rises.

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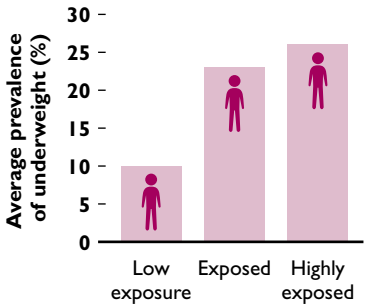

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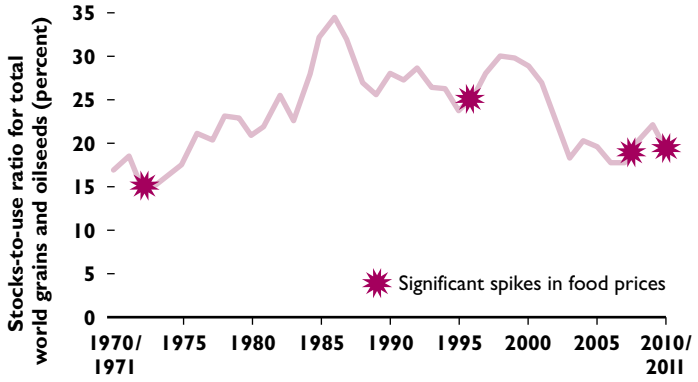

Food stocks can cushion against food price volatility. All extreme price spikes for the past 50 years have coincided with low points in global stock levels.

FOOD PRICE INCREASES PUSH NUTRITIOUS FOODS OUT OF REACH

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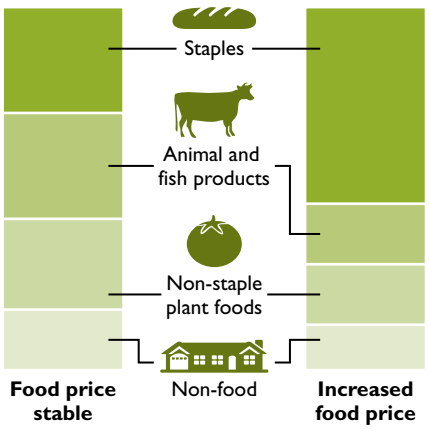


References to these figures are given on page 15.

EXECUTIVE SUMMARY

Malnutrition is a hidden killer of children. It is the underlying cause of 2.3 million child deaths every year. Globally it has also left 170 million children stunted globally, impairing their mental and physical development, and undermining their future potential. Despite making significant progress towards reaching most of the Millennium Development Goals (MDGs), malnutrition is a problem that has been neglected. In some countries, malnutrition is actually getting worse.

Good nutrition means more than simply getting enough food. Families must be able to grow or buy food containing all the energy and nutrients they need. They must also have good sanitation, clean water and access to healthcare to avoid getting illnesses that sap children of the nutrients they need.

Governments and businesses are finally starting to pay attention to the problem of malnutrition, but more support is required. And even these efforts will be undermined unless the threats posed by high and increasingly volatile food prices are addressed.

FOOD PRICES SOAR

In recent years, food prices have risen to unprecedented levels, and have also fluctuated dramatically. High and volatile food prices pose a major threat to efforts to tackle global malnutrition, affecting nutrition through many of the pathways outlined in this report (see page 6). They can put nutritious food beyond the reach of poor households and force families to sell productive assets such as tools and livestock, undermining their future ability to feed themselves and threatening their nutrition for the long term.

The sharp increase in food prices in 2008 is estimated to have pushed an additional 105 million people below the poverty line. And in February 2011, when food prices again reached their 2008 peak, another 48 million people fell below the poverty line.[1] Save the Children estimates that this put the lives of 400,000 children at risk.[2]

The outlook for the future is not good either. In July 2012, the Food and Agriculture Organization (FAO)'s food price index, which measures the price of food traded on international markets, jumped 6% following three months of decline, and a number of international experts predict high levels of volatility will continue into the future. The World Bank's food price index soared 10% in the same month, with maize and wheat prices increasing by 25% each. Food prices in domestic markets within countries have also been extremely high and volatile in recent years. Maize prices increased 174% in Malawi and 129% in Mozambique during 2012, while Sudan saw a 52% increase in wheat prices.[3]

A NEW NORM?

While countries vary in the ways in which they are affected by large increases in international food prices,[4] in several instances food prices within countries have been closely correlated with changes on global markets. The combined effect of an increasing population, climate change, low stock levels and increased demand for biofuels means that we are approaching a 'new norm' of high and volatile food prices.

Rising and volatile global food prices are pushing nutritious foods out of the reach of poor people. The resultant increase in malnutrition will have long-term effects on children.

An additional concern is that countries with the highest rates of malnutrition are among the most exposed to international price shocks because they import large proportions of their food. As this report shows, of the 36 countries that together are home to over 90% of all stunted children, only three are net food exporters. The vast majority of these 'high burden' countries, then, rely on food imports. As a result they are especially susceptible to the harmful effects of high food prices.

Furthermore, in all 36 high-burden countries, households on average spend over 30% of their incomes on food, with the poorest groups often spending a much greater proportion. This means that families in countries with a high burden of malnutrition are particularly susceptible to the negative impacts of dramatic food price rises. And it is the poorest people who are most vulnerable to high international agriculture and food prices.

WHY ARE FOOD PRICES SO VOLATILE AND SO HIGH?

The drivers of food price volatility are varied and complex. Poor crop harvests as a result of bad weather, transport costs, food price speculation (when financial institutions bet on future changes in food prices in order to try to make a profit), low stock levels, and the diversion of land away from food production have all been shown to play a role in driving price volatility.

The Future of Food and Farming, a comprehensive report commissioned by the UK government in 2009,[5] outlined the key factors likely to influence the future of the world's food system. It showed that while a growing global population and increasing levels of consumption around the world are likely to lead to increases in demand that will push up food prices in the long term, various other factors contribute to the food price volatility that is coming to characterise global food markets.

In addition, several modelling approaches have shown the impact of EU and US biofuel mandates to be pushing up global prices of cereals in the medium and long term. These analyses add to an emerging consensus about the substantial impact that demand created by the biofuel mandates is having on global food prices.[6, 7]

The constellation of factors driving both food price volatility and higher food prices in the medium and long term means there is a major risk that we are facing a new norm of high and volatile food prices. It is vital that we act now to address the underlying drivers of volatile food prices, and ensure that the most vulnerable children are protected from negative impacts.

RECOMMENDATIONS

We call on **developing country governments** to:

- invest in regionally held stocks for areas without private stocks or access to global markets
- strengthen social transfer programmes as key policy tools to combat hunger and malnutrition.

We call on **G20 governments** to:

- use the Agricultural Market Information System and Rapid Response Forum to ensure food producers respond with policies that contain, rather than exacerbate, volatility. Countries should commit to avoiding export restrictions and bans or other means that restrict the supply of staples on international markets and that can increase global food price volatility.
- scale up multi-year funding to support the establishment of social transfer programmes
- pursue mechanisms that minimise the impact of biofuel demand on food prices, particularly during price spikes.

We call on **the EU** to:

- address one of the underlying drivers of volatility and long-term price rises by dropping the Renewable Energy Directive's mandate that 10% of all EU fuels should come from renewable sources by 2020
- review sustainability criteria within both the EU's Renewable Energy Directive and the Fuel Quality Directive to include consideration of the impact on food security and nutrition.

GLOSSARY

Biofuel A transport fuel made from biomass. Here we use the term to refer only to biofuels produced on an industrial scale (not small-scale biofuels for local energy access).

Biofuel mandate Legislative policies which support the production of biofuels by calling for a certain percentage of countries' fuel mix to be provided by biofuels.

Commodity futures Agreements to buy or sell a commodity at a specific date in the future at a specific price. These agreements are traded on financial markets.

Direct Nutrition Interventions A set of 13 nutrition-specific interventions, which were originally set out in the Lancet series on maternal and child nutrition in 2008 and have since been adopted as the focus of the Scaling Up Nutrition (SUN) movement.

Food price volatility Fluctuations that are observed around a given food price level. This volatility can be measured by the standard deviation of moving averages of food price indices.

'High-burden' country One of the 36 countries which together are home to over 90% of stunted children globally.

Malnutrition The condition that develops when the body does not get the right vitamins, minerals, and other nutrients required to keep the body healthy.

Price spike A large upward movement in price in a short period.

Social transfer programmes Programmes that distribute cash, food or assets – sometimes in exchange for recipients' participation in employment or other activities – in order to protect those people from poverty and promote productive livelihoods.

Staple A food such as a grain, that is storable in the medium to long term and which forms the basis of a traditional diet. Such foods tend to be high in energy but do not provide all the nutrients required for a healthy diet.

Stock-to-use ratio The ratio of excess supply, in the form of unconsumed stores of grain and other foodstuffs, to demand.

1 HIGH AND VOLATILE FOOD PRICES – THE NEW NORM?

We are approaching a new norm of high and volatile global food prices. The drivers are numerous and complex, and these global trends threaten to push up prices in domestic and local markets. Countries with a high burden of malnutrition are often net food importers and are the most vulnerable to the harmful effects of global food price shocks. They have the least fiscal space for spending on food subsidies; space that is tightened even further by price rises.

Since 2008, when food prices hit an all-time high, food prices have remained high and unprecedentedly volatile.[8] Prices for most major food commoditites have been rising over the past decade. After a brief hiatus following the 2008 food price crisis, prices increased again in 2010. More recently, worrying increases have been observed: in March 2012, prices were only 6% below their February 2011 historical peak and in July the food price index jumped by 6%. According to the director of the United Nations Food and Agriculture Organization (FAO), "food prices will remain elevated and will be highly volatile in the next ten years."[9]

Domestic factors play an important role in determining price movements within countries. For example, high inflation is partly responsible for the 174% increase in food prices in Malawi between January and June 2012.[10] Poor harvests, conflict, seasonal trends and effects in adjacent markets have been important drivers of some of the more drastic domestic price increases seen in sub-Saharan Africa.

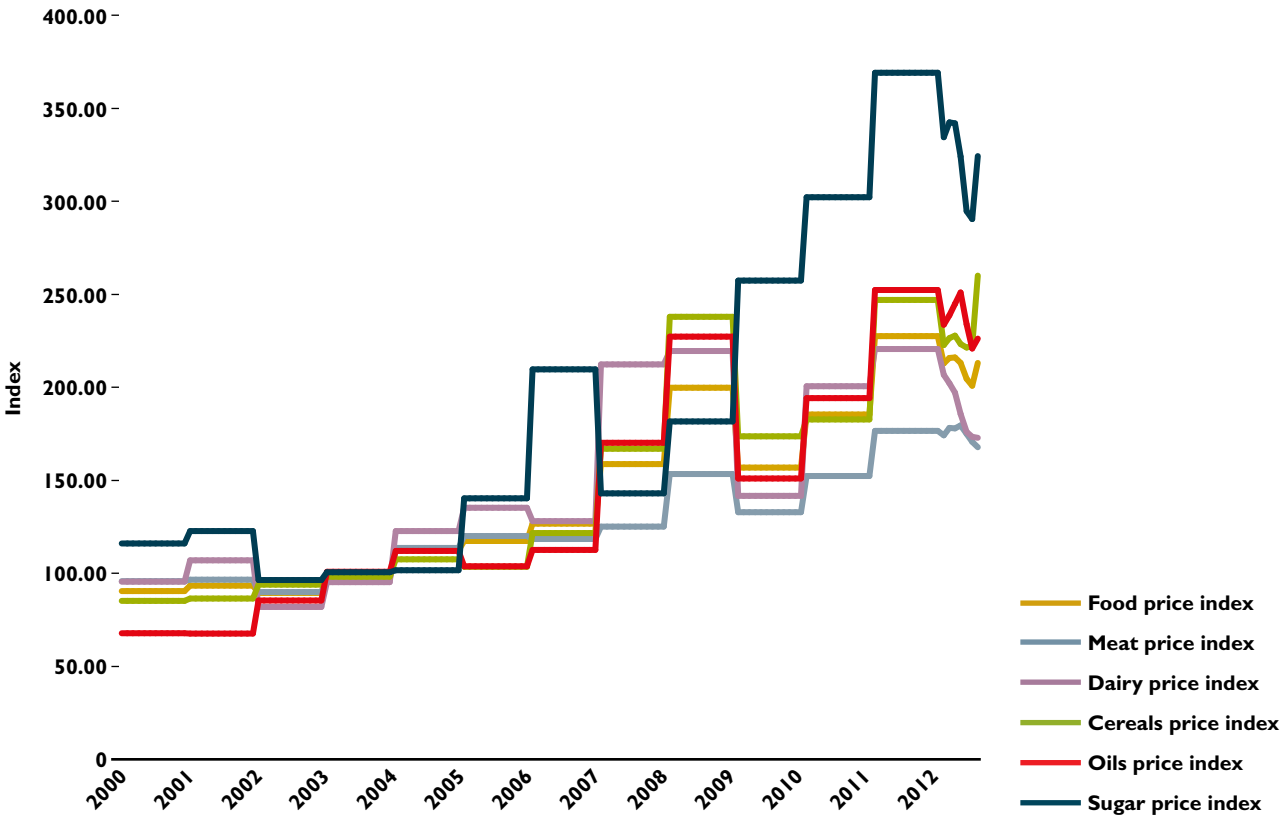
The extent to which domestic food prices are affected by changes in price indices on global markets varies from country to country.[11] During the 2007–08 food price crisis, 22 out of 37 developing countries saw the domestic price of staples increase by over 20%, and nine experienced price rises over 50%.[12] While several countries in Asia saw clear and significant price rises in their domestic markets,[13] the experiences of countries across Africa have been very varied.[14]

In Ghana, for example, prices of both imported and domestically produced grains are highly correlated with world market prices.[15] Similarly, evidence from several countries in the Middle East and North Africa shows a significant degree of transmission between international and domestic food prices, despite the use of food price subsidies and other government interventions.[16] During the 2008 food price crisis, prices of staple foods in 11 African countries rose by 63% on average.

The extreme scale of recent international price increases is likely to be one reason for increased transmission to domestic markets compared to the previous five to ten years.[17] Between March 2011 and March 2012, the price of rice rose by 125% in Uganda, 54% in Tanzania and 38% in Rwanda.[18] Prices of locally-produced foods can also increase when more well-off people buy them as substitutes for more expensive imports.[19]

Perhaps most worrying is the ratcheting effect global food prices can have on domestic markets over time, with increases typically exceeding any decline in prices.[20] A recent World Bank study of the effect of global food prices on countries in the Middle East, for example, found that "increase[s] in world food prices [are] typically transmitted into domestic food markets, but a decline in world food prices rarely transmits at the same degree."[21] This means that when volatile international prices begin to rise again, even greater increases may be felt within domestic markets. Local prices in many countries had barely

FIGURE 1: FAO FOOD PRICE INDICES 2000–12



Figures annual to January 2012

Source: UN Food and Agriculture Organization, 2012

fallen from the 2008 price spike when prices began to rise again in 2009. In 58 countries, local food prices remain an average of 55% higher than before recent food price spikes.[22]

'HIGH-BURDEN' COUNTRIES ARE MOST VULNERABLE TO PRICE SHOCKS

A high reliance on imports and a low fiscal capacity to respond to price increases makes low-income countries – 73% of which are net food-importing countries[23] – particularly vulnerable to food price shocks.[24]

High and volatile food prices can have harmful effects at country level. Historically, changes in global food prices have been shown to be an important factor in determining countries' food import bills.[25] The total cost of importing cereals in low-income countries was US$31.8 billion in 2010–11, 29% more than in 2009–10, despite higher world production in 2010 than in previous years.[26]

Countries with large import bills are susceptible to inflation after spikes in food and fuel prices. In 2010, emerging and developing countries experienced increased inflation rates of between 6% and 8%. In Burundi, inflation rose from 4.5% in 2009 to 15% in 2011.[27]

Government spending on food subsidies uses revenue that could otherwise be spent on essential services such as health care, education or, indeed, nutrition interventions. Each 10% increase in the price of cereals and rice adds US$4.5 billion to the cereals import bill of net-importing developing countries.[28] By this estimate, the 18% increase in grain prices observed between April and July 2012[29] would have added a further US$8 billion to the import bill of these countries. This amount would finance annual developing country contributions to the minimum package of direct nutrition interventions.[30] Matched by donors, these contributions could save the lives of 1.1 million children under the age of five and prevent 30 million children from becoming stunted.[31]

Our research shows that countries with the highest rates of malnutrition import large proportions of

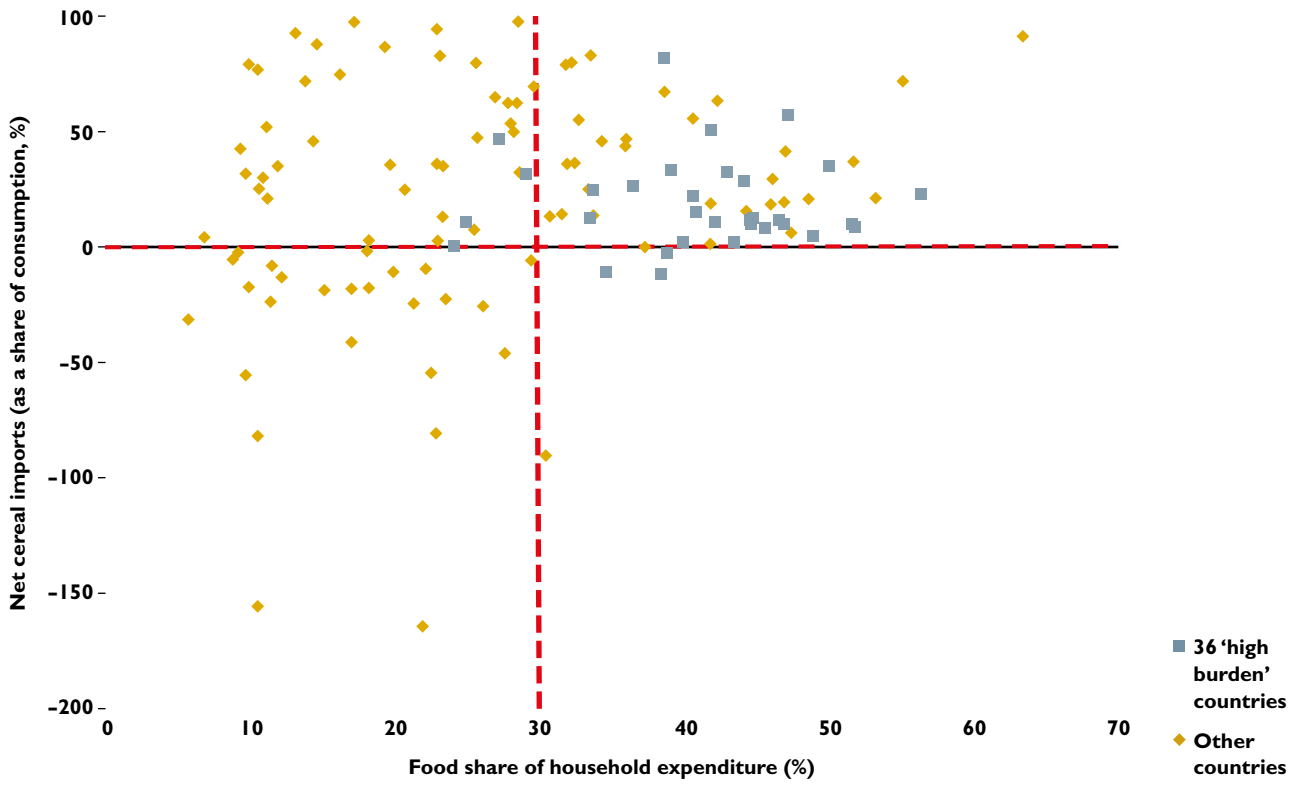
their food and are therefore among the most exposed to international price shocks. Data from Save the Children's 2012 Child Development Index shows that the average prevalence of underweight (one form of malnutrition) in countries identified as 'exposed' to food price volatility is 23%. In 'highly exposed' countries, it is even higher at 26%. This compares with an average prevalence of underweight of 10% in countries not identified as exposed to food price spikes.[32]

The finding that food price rises are felt hardest in countries already struggling with high levels of malnutrition is confirmed by data from the most recent Food Price Watch report of the World Bank. In figure 2, countries are plotted according to the extent that they rely on imports and the degree to which food contributes to household expenditure. All 36 of the 'high malnutrition burden' countries, which together are home to 90% of malnourished children, are among the most exposed to food prices. All but three of these countries are net food importers, and families in these countries spend a very high proportion of their expenditure (30–55% on average) on food, with the poorest people spending as much as 80% of their income on food.

While in some circumstances protectionist policies have succeeded in protecting populations from the worst effects of crisis, at a global scale such policies have in fact exacerbated the problem of high food prices.[33] For example, in August 2010, following a drought that saw the highest temperatures recorded in 130 years, Russia imposed a grain export ban in the hope of keeping grain prices within Russia down. The impact of this was to increase the food prices paid by importing countries, some of which were much poorer than Russia and were already suffering from high malnutrition levels. For example, Pakistan saw a 16% increase in the price of wheat and as a result the World Bank estimates that poverty incidence increased by 1.9% over this period.[34]

Unlike rich countries, low-income countries may not have the ability to protect their markets or their populations.[35] For example, many poor and fragile states were unable to mitigate the full extent of high prices in 2008, meaning they could not protect their domestic markets from dramatic increases. In Côte d'Ivoire this contributed to riots and social unrest.[36]

FIGURE 2: VULNERABILITY OF COUNTRIES TO GLOBAL FOOD PRICE SHOCKS



90% of stunted children live in 36 countries, which are all shown to be among the most vulnerable to food price spikes.

Source: Adapted from *The World Bank: Food Price Watch*, August 2012

2 POOREST HOUSEHOLDS HARDEST HIT

High and volatile food prices affect the poorest households most. Rising prices are pushing nutritious foods out of reach of poor families and threatening to increase malnutrition. Intake of essential micronutrients is often the first casualty of higher food prices, meaning that children are likely to suffer long-term harmful effects of resulting malnutrition.

Price increases in international commodity markets are passed on to people buying food in local markets of poor countries, even where the food they eat is not traded on international markets.[37] In developing countries, food comprises a large share of household expenditure – up to 80% in some cases[38] – so even small price rises affect their ability to buy high-quality, nutritious food. Most people living in urban and rural areas in developing countries are net food buyers (97% and 75% respectively), meaning they buy more food than they sell.[39] Furthermore, consumers in these countries buy less processed food, leaving them much more vulnerable to increases in the price of commodities. This is because the cost of raw food makes up a larger proportion of the total cost of the food they buy, with other costs such as processing and packaging being less able to buffer against food price increases.[40]

Save the Children's Young Lives research (Figure 3) indicates that among children surveyed in Ethiopia between 2006 and 2009, food price increases were the most significant shock affecting all wealth groups. Research commissioned by Save the Children in 2011 found that in countries as diverse as Nigeria, Peru,

FOOD PRICE SPIKES CONTRIBUTE TO CHILDREN'S MALNUTRITION – THE EVIDENCE

- In Mauritania, the prevalence of wasting (one measure of malnutrition) increased from 8.5% in 2007 to 12% in 2008. This is thought to be directly related to price increases. Prior to the crisis, global acute malnutrition had declined from 13.5% in 2000.[42]
- In poor urban areas of Cambodia, the prevalence of wasting among children under five increased from 10% to 16% following food price rises.[43]
- When the price of rice increased by 94% in Bangladesh in 2009, the prevalence of wasting increased from 13.5% to 21% among urban children and from 17% to 26% among rural children.[44]
- In Niger, the number of children admitted to feeding centres with acute malnutrition increased within five weeks of millet prices rising.[45]
- In West Africa, following the devaluation of the African Financial Community Franc, the quality of foods given to children declined, as did routine preventative healthcare such as growth monitoring and immunisation. Meals became smaller and their fat and vegetable content depleted. These changes affected economically disadvantaged and socially isolated households, and those headed by women, specifically. The nutritional status of mothers and children declined during this period, including reductions in birth weight, height-for-age and weight-for-age.[46]

Bangladesh, India and Pakistan, the majority of people surveyed said the rising price of food had become their most pressing concern.[41]

INCREASING MALNUTRITION

The new norm of high and volatile food prices is having the greatest impact in those countries that already have high levels of malnutrition.

UNICEF's framework for understanding the causes of malnutrition (Figure 4) shows the various factors that influence an individual's nutritional status. The most immediate are dietary intake and exposure to disease, which in turn are influenced by underlying factors in the economic, social and political environment. Important among these is the food economy – those factors that affect the accessibility, availability and quality of food – including food price fluctuations and domestic food production systems.

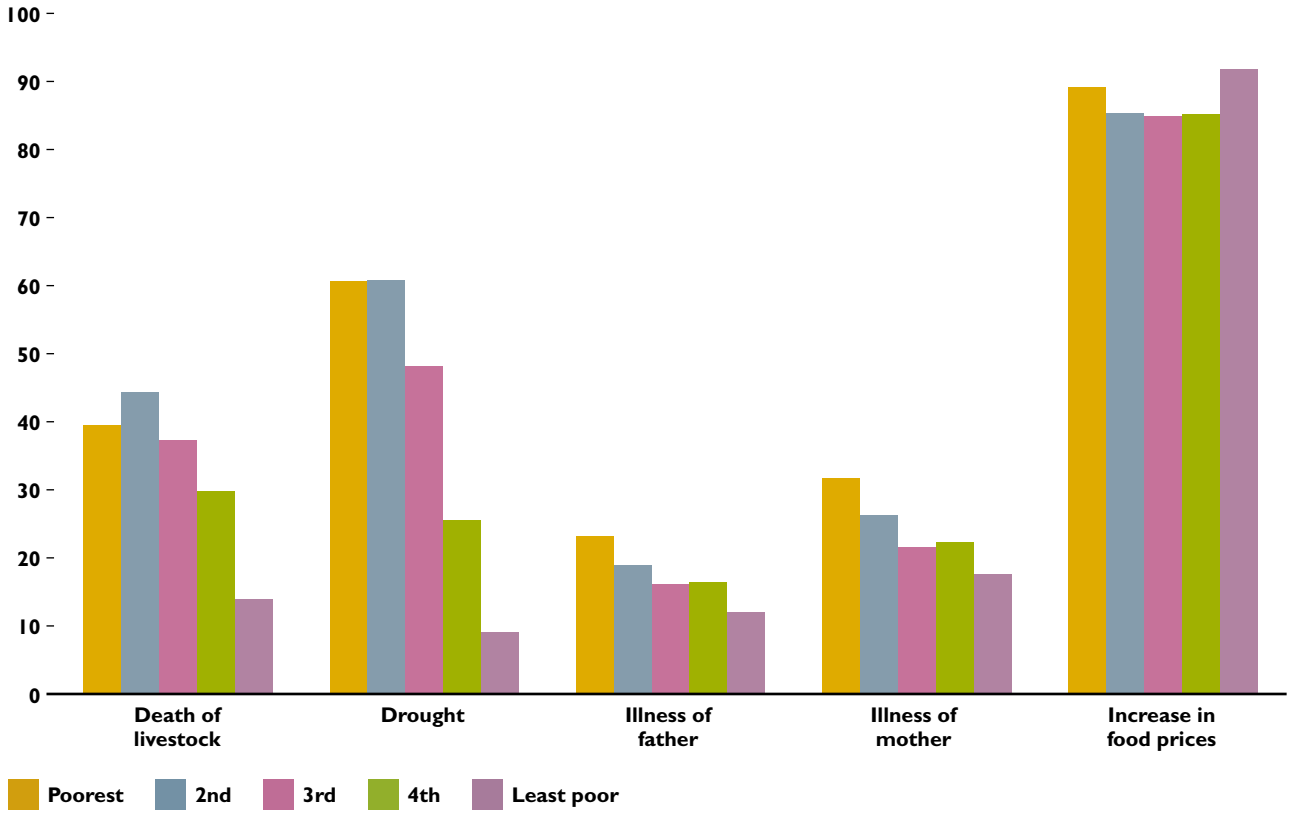
Save the Children's *Cost of Diet* tool shows that a diet providing the recommended intake of nutrients is higher than the income the poorest families have available to spend on food – even before prices rise (Figure 5, page 7).[47] Nutritious foods such as pulses, vegetables and meat cost more than staples that meet average energy needs, and are too expensive for many of the poorest families, even before food prices rise.

It is unsurprising, therefore, that when income or food price shocks occur, poor households tend to give priority to meeting their energy intake (Figure 6, page 7). The poorer the household, the smaller the margin they have for making adjustments that allow them to continue to consume a nutritious diet.

In both urban and rural areas, poor people who buy (rather than produce) their food tend to:

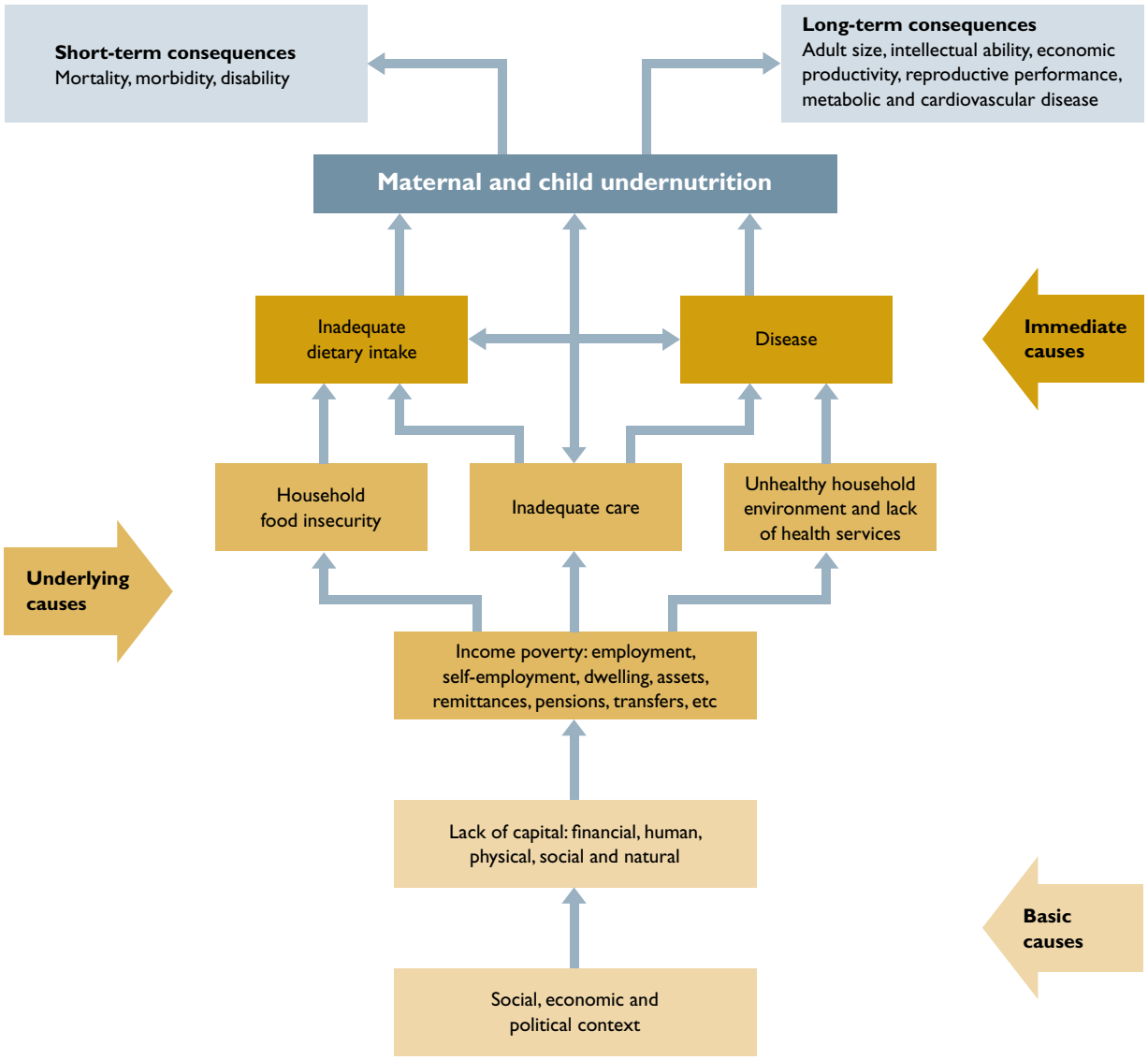
- switch to cheaper, often less preferred or lower-quality staples, which have a lower nutrient content[49, 50]
- buy less food, skip meals or reduce their overall food intake, with consequent reductions in their intake of energy, protein and micronutrients
- decrease their intake of fruit and vegetables – instead prioritising cheaper staples, which results in micronutrient deficiencies

FIGURE 3: PERCENTAGE OF 'YOUNG LIVES' HOUSEHOLDS IN ETHIOPIA AFFECTED BY SHOCKS, 2006–09, BY WEALTH QUINTILE



Source: Young Lives, 2012, forthcoming

FIGURE 4: POVERTY, FOOD INSECURITY AND OTHER UNDERLYING AND IMMEDIATE CAUSES OF MATERNAL AND CHILD MALNUTRITION, AND THE SHORT- AND LONG-TERM CONSEQUENCES



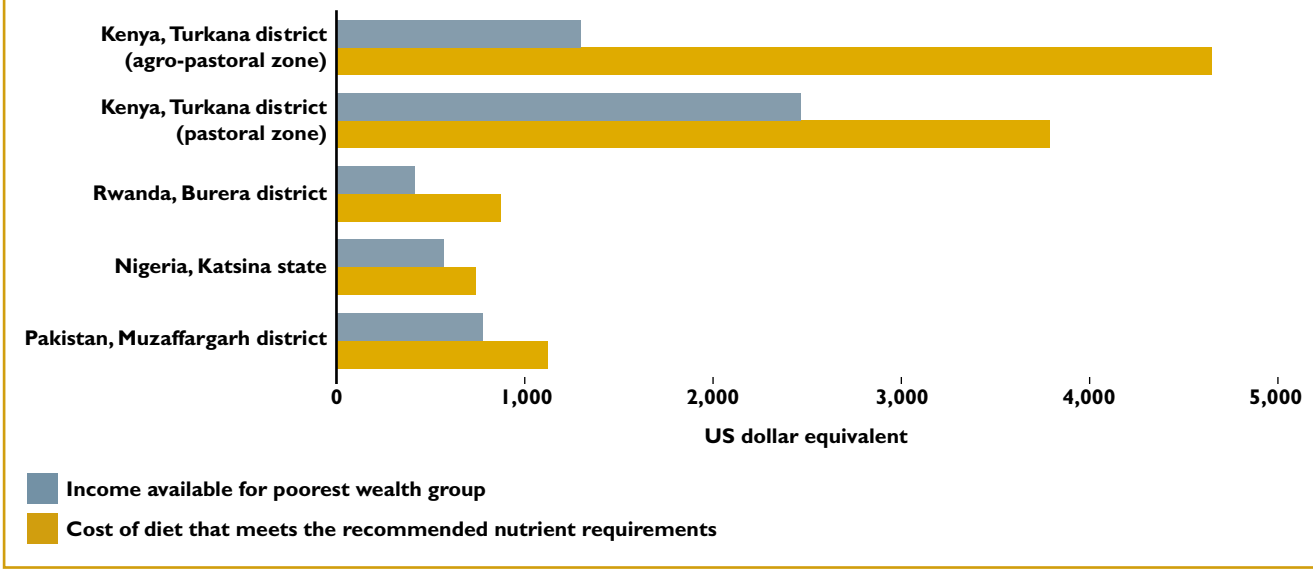
Source: UNICEF framework, presented in Black *et al* (2008) 'Maternal and child undernutrition: global and regional exposures and health consequences', *The Lancet*, January 2008

- use different ingredients and cooking methods – often sacrificing intake of animal source foods and vegetables and substituting them with non-nutritious spices and artificial flavouring
- modify the allocation of food within the household, with mothers going without food in order to maintain their children's dietary intake.[51]

Research based on data from 188,835 households in Bangladesh has concluded that "low dietary diversity during the period prior to major food price increases indicates potential risk for worsening of micronutrient deficiencies and child malnutrition."[53] The effects are felt most strongly among the poorest households because they spend a large proportion of their income on food. Following a poor rice harvest in 2007, increased food prices meant that the poorest quartile could no longer afford a nutritious diet and a previous 7% reduction in stunting was later wiped out.[54] Household-level survey data showed that a 50% increase in food prices resulted in a decrease in energy intake of 5% to 15% but a much more dramatic decrease in iron intake of 10% to 30%.[55]

The UNICEF framework (Figure 4) outlines care practices as a key factor affecting nutrition outcomes. In response to high food prices, families often send extra members out to work, which can have an

FIGURE 5: A DIET THAT MEETS THE RECOMMENDED NUTRIENT REQUIREMENTS REGULARLY COSTS MORE THAN THE INCOME OF THE POOREST HOUSEHOLDS



Source: Cost of Diet studies by Save the Children.[48]

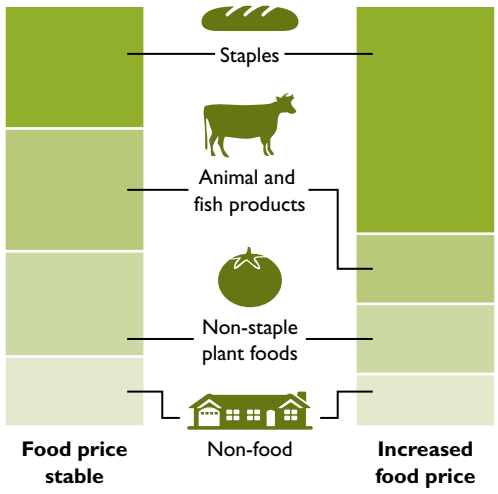
impact on the care of children and their nutrition. A reduction in income can reduce families' ability to afford healthcare. Even where it is free, they may not be able to travel to clinics.[56]

While increases in food prices can be harmful for nutrition, sudden price spikes and price volatility are even more damaging (see box, page 4). The shock of a spike often forces families into poverty traps, destabilises livelihoods, and reduces incomes – the effects of which persist even after prices stabilise. The box on page 8 discusses some of the impacts of price volatility on nutrition.

BUYERS AND SELLERS – EXACERBATING INEQUALITY

Food price increases exacerbate inequalities, as the poorest people are most detrimentally affected. Households that produce more food than they buy tend to be among the wealthiest sections of society and they benefit from food price rises. The poorest families, on the other hand, tend to spend a high proportion of their income on food and may get poorer as a result of these price rises. In fact, the benefits of high food prices may be concentrated among very small numbers of large-scale producers. A 2010 study by the International Food Policy and Research Institute (IFPRI) found that less than 2% of farming households accounted for more than

FIGURE 6: EFFECTS OF FOOD PRICE INCREASES ON HOUSEHOLD DIETS



Source: Adapted from Bouis, Eozenou and Rahman, Harvest Plus[52]

half of all sales of maize in four countries in south-eastern Africa.[63]

An FAO review of studies of rice growers found that even in countries that are net-exporters of rice and stand to gain nationally from high prices – such as Thailand, the Philippines and Indonesia – the poorest quintile of the population were almost always net buyers of rice.[64, 65] In Thailand, high prices for grains actually increased the incidence of poverty because

THE IMPACT OF PRICE VOLATILITY ON NUTRITION

While gradual price increases might encourage investments in agriculture and encourage people to become net-sellers, volatility discourages smallholder investments in agriculture, making it too risky that prices will have changed by the time the yields of such investments are reaped.

Food price rises diminish the resilience of poor households by forcing them to sell productive assets.[57] Volatility can also deter farmers from investing in the agriculture that could help them benefit from the price rise. Farmers in Ethiopia, for example, were reluctant to buy fertiliser in fear of economic shocks.[58] Price volatility is an important feature of the food economy which is likely to contribute to such risk adversity.

Dramatic price falls following spikes can force farmers to sell productive assets – land and livestock, for example – leading to potential poverty traps.[59] Farmers who have already planted their crop before a price fall are particularly vulnerable, and poor smallholders, in particular women who do not have access to credit, may struggle to finance the inputs needed to replant and stay in business.[60] Their household income is likely to suffer as a result which could contribute to long-term nutritional impacts.

Changes in purchasing power due to price volatility can reduce the consumption of key nutrients during the first 1,000 days of a child's life. This can permanently impede their development and reduce their future earning capacity.[61] A Save the Children study in Bangladesh found that poor families often took loans to replace lost income. Repayment became a priority over livelihoods investments and detracted from families investing in their children's nutrition.[62]

of the impact on consumer families.[66] In rural Malawi, the estimated net loss of income to the poorest quintile of households was 2.5%, twice that of the richest quintile.[67]

Children living in urban poverty, numbers of which are increasing,[68] are perhaps the most vulnerable to food prices shocks as they rely on buying food and cannot grow their own to sell.[69] People who live in towns and cities tend to consume greater amounts of rice and wheat (mainly as bread) than those who live in rural areas, leaving them more vulnerable to variations in the international market price of these staples.[70]

The impact of rising food prices is also often damaging to poor households living in rural areas, and greater than the impact on better-off landowners, because poor households are likely to be net consumers.[71] Forthcoming evidence from Save the Children's Household Economy Approach tool shows that the poorest people, even smallholder farmers, often rely most heavily on buying food and are more vulnerable to food price changes than richer people living in the same areas, who often have greater ability to produce their own food. Even in Vietnam, where studies have shown a net welfare benefit from high food prices, people without land are expected to lose an average of 1.7% of their income due to high food prices, with a maximum of 3.3% in the poorest fifth in the distribution of expenditure.[72]

Female-headed households are also more severely affected by high food prices. Women typically have less access to land and agricultural services, so their ability to produce food is limited and they have to rely more on market-bought food. And restricted access to credit and savings services means they are less able to respond to increased pressure on household budgets.[73]

3 WHAT'S DRIVING FOOD PRICE VOLATILITY?

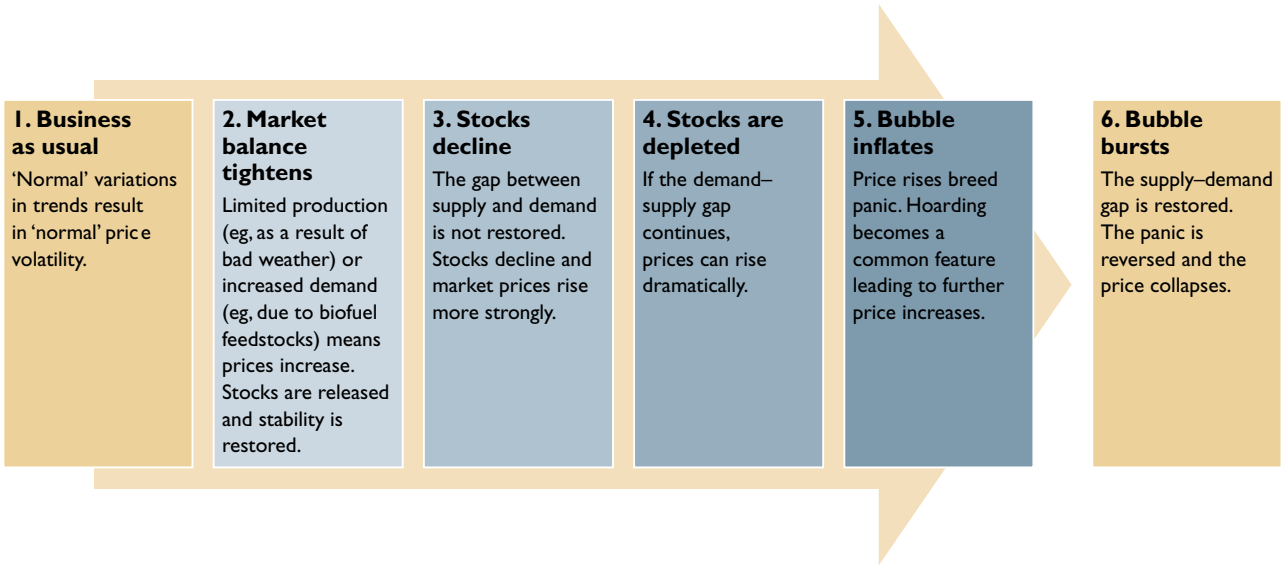
The drivers of high and volatile food prices are numerous and complex. Coordination of policy responses among major exporting states is crucial to ensure that export bans are not introduced, as these can have damaging impacts by hiking up food price volatility globally. Demand for biofuels is influencing global food prices.

A growing global population and increasing levels of consumption around the world are likely to lead to increases in demand that will push up food prices in the long term. However, various other factors also contribute to the food price volatility that is coming to characterise global food markets.

Agriculture markets are inherently volatile. Output varies from year to year due to natural factors such as weather and pests, as well as complex economic and political issues that influence how much land is put to seed each year. The ability of the market to respond to increases in demand or reductions in supply is subject to a time lag because of the time involved in planting and harvesting new crops.

As Figure 7 shows, there are several steps that together lead to food price spikes. One key factor

FIGURE 7: TYPICAL FACTORS LEADING TO A FOOD PRICE SPIKE



Source: Adapted from Tangermann, 2011[74]

is that global stocks of food tend to be substantially reduced. Most foods, but particularly cereals, are storable. When prices are low, market agents tend to put the commodity on stock, expecting they can sell it at a higher price later. However, the ratio of international stocks to the amount of demand for grains has varied over time, and all extreme price spikes for the past 50 years have coincided with low points in global stock levels.[75] Stock-to-use ratios were at historical lows before the 2007/2008 crisis, for example.

When at adequate levels, food stocks can be protective against food price volatility. Stocks can be bought or sold in response to high or low food prices, thus preventing dramatic price fluctuations. However, once stocks are depleted, their ability to dampen market trends ceases, leaving the food system vulnerable to shocks.[76] In turn, market actors become more nervous when stock levels fall. Farmers sell later, while traders, processors and distributors buy earlier in anticipation of price rises, which can drive up prices further.

In the years following 2000, diminished stocks-to-use ratios signalled the rising global demand for food. After a poor harvest in 2007, without the stocks to cushion supply, all adjustments had to be on prices.[77] Panic responses from governments facing food shortages and inelastic demand created by biofuel mandates (see below) magnified the effects of the spike.

Stocks can also dampen the transmission of high global food prices to domestic markets. Transmission rates during the 2010–11 price spikes were significantly lower than in 2007–08. One clear reason for this is the increased production during 2009 and larger stocks in 2010, which dampened the effects of price volatility.[78] The OECD-FAO argue that stock-to-use ratios will remain below historical averages in the coming years – suggesting that much more price volatility could be on its way.[79]

This poses serious challenges for the world's growing population. The UK government's report, *The Future of Food and Farming*,[80] shows that while a growing global population and increasing global consumption are likely to lead to increases in demand that will push up food prices in the long term, various other underlying factors contribute to the food price volatility that is coming to characterise global food markets.

CLIMATE CHANGE

Climate change is resulting in unpredictable weather patterns and increasing desertification of productive agricultural land. Rising global temperatures have already begun to affect crop supply, while crop production will also be indirectly affected by changes in sea level and river flows.[81] These changes will lead to reduced yields of important crops, especially in developing countries. The resulting reduction in yield could increase child malnutrition by 20% by 2050.[82]

Weather has the greatest impact on agricultural production and the volatility of markets.[83] When major cereal producers experience a poor harvest, global production levels fall, immediately driving up food prices. In the lead up to the 2008 food crisis, low production levels in Canada, Australia, Russia and Ukraine led to a 2.4% drop in wheat production at a time when demand was increasing.[84] More recently, the US has been hit by its worst drought in 60 years. Russia's grain harvest has also been hit by drought,[85] contributing to a 6% jump in the FAO international food price index, and a 19% jump in the price of wheat.

TRENDS IN OIL PRICES

Fuel prices also play an important role in determining food prices, not only because inputs to agricultural production and transport costs increase, but because the demand for feed-stocks for bioenergy also increases. It is estimated that global demand for energy could increase by 45% between 2006 and 2030,[86] with grave effects on oil prices. The International Monetary Fund (IMF) estimates that oil prices could double between now and 2020.[87] Given the heavy reliance of so many agricultural inputs (such as fertilisers and farm machinery) on fuel prices, this increase will set unprecedented challenges for food suppliers to produce food without dramatically increasing its price.

Furthermore, with food commodities increasingly used as fuel (in the form of ethanol and biodiesel), oil price volatility is being directly transmitted to food prices as farmers have the option to sell their crops as biofuels rather than food. The OECD suggests that a 10% change in the price of oil results in a 2.3% change in the price of wheat and a 3.3% change in the price of maize and vegetable oils.[88]

EXPORT BANS AND OTHER POLICY RESPONSES

Nation states imposing protectionist policies, often spurred by a lack of information on international stock levels, and a lack of coordination among the major food producing countries, can lead to sudden increases in food prices. Export restrictions and bans by major exporting countries, concerned about their own food security, have played a major role in increasing global food prices and contributing to price volatility, not only by restricting supply, but by increasing panic in markets.[89]

In 2007, a failed wheat crop led the Indian authorities to retain enough rice to substitute for the wheat by imposing export restrictions. This led other rice-exporting countries to panic and impose restrictions, leading the rice price to rise dramatically. During the summer of 2010 too, prices of wheat and maize increased by 50%, a jump closely correlated with export restrictions of major producing countries.

CURRENCY AND COMMODITY MARKETS

In a globalised world, even seemingly unrelated trends can have an impact on food prices. Currency valuations play a role in pushing up food prices and particularly in contributing to their volatility. The OECD estimates that a 10% depreciation in the value of the US dollar could directly result in a 5% increase in the price of agricultural commodities. According to some experts, decreases in the value of the US dollar contributed between 10% and 30% to price spikes between 2002 and 2008.[90] Inflation is also seen as a key factor behind the 174% increase in the price of maize in Malawi between July 2011 and July 2012.[91]

There has been considerable discussion on the impacts of commodity futures markets (in which financial institutions bet on future changes in food prices in order to try to make a profit). Many argue that the increasing scale of speculation in these markets has contributed to recent food price rises, and in particular to increases in volatility.

Low interest rates and the collapse of the US housing market in 2008 are thought to have encouraged investors and sovereign wealth funds to invest their excess finances in agricultural commodities, creating a large increase in speculative activity. This is of increasing concern to commentators and policy makers. To reduce the risk caused by problems in other markets, investors buy contracts that allow them to purchase commodities, including food, at an agreed price in the future.[92]

Personnel at the US Department of Agriculture use the price of these 'futures' as the starting point on which to set spot prices, on the basis that the former are assumed to reflect otherwise hidden global market information. This is only problematic from the point of food price volatility if investors do not base their trading solely on supply and demand news, because the role of finance in commodity markets distorts market signals.[93]

Although the evidence is not conclusive, many credible experts suggest that the signals these investments send to markets lead to hoarding when demand is highest, which reduces supply and pushes up prices even further.[94] Experts have noted a close correlation between increases in money being fed into futures markets and increases in commodity prices.[95] Several have concluded that futures markets were a significant factor in 2006–08 by exacerbating trends that were already pushing prices up.[96] Econometric models aimed at explaining changes in food prices have found that they could only accurately achieve this by considering trends in speculative activity.[97] Indeed, these verified models have predicted that speculation in futures markets will exacerbate the future effects of shocks such as the 2012 US drought.[98]

BIOFUEL MANDATES

Demand for biofuels has grown rapidly in the past ten years and the EU's and US's biofuel mandates have contributed to this increasing and inelastic demand. Between 2007 and 2009, 20% of sugar cane, 9% of vegetable oil and coarse grains, and 7% of sugar beet was used directly to produce biofuels.[99] The use of cereals for biofuel production grew by more than 100%, accounting for 60% of the overall increase of cereals use.[100] OECD-FAO suggested that global production of bio-ethanol and biodiesel will continue to increase, with biofuels set to consume as much as 34% of sugar cane, 16% of vegetable oil, and 14% of coarse grains by 2021.

There is much evidence showing that biofuel mandates will push global food prices up in the long term. Several researchers have used economic models of the global economy (called General Equilibrium Models) to estimate what the impact of biofuel demand will be on global prices of a number of food commodities. These models estimate the impact of increased demand for biofuel crops, and tend to show that, in the long term, significant increases will be found.

Such econometric modelling shows the effect of mandates on pushing up food prices, not on price volatility. It assumes that markets will have sufficient time and resources to adjust to a new equilibrium with global food prices at a higher level than they were previously. However, there is increasingly a consensus among various actors that rapid increases in the demand for biofuel is making food prices more volatile as well.[101] The evidence suggests that biofuels influence global food prices in three ways:

1. By driving down stock-to-use ratios, biofuels reduce the ability of the market to respond to supply or demand shocks. The rapid increase in biofuel demand in recent years is likely to have led to a depletion of stocks, especially as mandates create demand that is unresponsive to changes in commodity prices. When stocks were virtually wiped out in 2007, demand for biofuel feed stocks kept growing, leading to a situation where the food system could not adjust to increasing demand without a dramatic price spike.[102]
2. Biofuels strengthen the links between oil and food prices,[103] as high oil prices can increase demand for the commodities used in the production of biofuels (sugar, maize, vegetable oils).[104] By making agricultural commodities substitutable with petroleum products, biofuels have facilitated price transmission from energy to food markets. A high oil price encourages consumers to switch to biofuels as an alternative.[105]
3. The diversion of agricultural commodities (including land and other agricultural inputs) away from producing food and towards fuel production is likely to create significant competition for resources. This will affect food prices in the long term.

The UK government's *Future of Food and Farming* report found that "changes encouraging the conversion of agricultural land to the production of biofuels" were a key factor underlying recent price spikes,[106] while the EU admits that its mandate will push up cereal prices by 3–6% and rapeseed prices by 8–10% by 2020.[107]

While some analysts argue that a suspension of mandates could have a lower than expected impact on food prices, the UN's Food and Agriculture Organization (FAO) has called for the US to suspend its biofuel mandates in the face of food price increases.[108, 109] Similarly, the CEO of US grain-producer Cargill has argued that inflexible mandates, subsidies and tariffs are pushing up food prices and acting as a barrier to feeding 9 billion people.[110] Similarly, the CEO of food processor and packager Tetra Pak has said that action on biofuels and other drivers of food price volatility must be taken as a matter of urgency.[111]

4 CONCLUSIONS AND RECOMMENDATIONS

Alongside rapidly scaling up commitment to nutrition, governments of high-burden countries need to consider the impact of high and volatile food prices in strategies to combat malnutrition. They should invest in social protection and food stocks. Governments in key exporting countries should coordinate to prevent policies that exacerbate volatility.

Save the Children has already called on countries and donors to urgently implement plans for scaling up nutrition interventions to directly tackle malnutrition, set stunting targets to ensure they are held to account for their commitments to reducing malnutrition, and invest in nutrition-sensitive agriculture and social protection systems.

But high and volatile food prices pose a key threat to efforts to tackle malnutrition, and therefore to progress towards Millennium Development Goals 1, 4 and 5 (the targets of which are to: eradicate extreme poverty and hunger; reduce child mortality by two-thirds; and reduce maternal mortality by one-third, respectively). Different countries and groups of people are affected differently by food prices, and as such responses to these trends should be flexible enough to provide solutions tailored to country and regional level. But at the international level, discrete policy recommendations could serve to protect the poorest people from the devastating impacts that food price volatility threatens.

PROTECTING THE POOREST

All too often, countries' responses to food price rises and volatility make international markets nervous and spark panic. This leads to export restrictions and a reduction in supply which, when reserves have been depleted, means that globally prices rise dramatically. **Governments in key exporting countries should coordinate and share information through the G20 Agricultural Market Information System to prevent reactionary policy responses that exacerbate volatility.**

The availability of stocks is crucial for the market to respond to sharp increases in demand. Some countries rely on a combination of food reserves, import or export monopolies, and domestic procurement to stabilise prices. Mali and Ethiopia have successfully implemented strategic food reserves. Mali's *Programme de Restructuration du Marché Céréalier*,[112] for example, successfully mitigated a drought in 2004–05 that devastated neighbouring Niger. However, these buffer stocks may not be an option for low-income countries as storage infrastructure and food stocks themselves are costly, and their effectiveness can diminish in the face of regional or global price shocks. **In the long term, donors should invest in regionally held stocks for areas without private stocks or access to global markets.**[113]

Given that several factors driving food price volatility are unlikely to change, volatility will continue to be a reality in the future. **Governments should implement and scale-up social protection programmes to support those who are most vulnerable.**

Brazil's policy response to the 2008 food crisis was costly in fiscal terms and allowed international prices to be transmitted to domestic prices. However, the government protected those who were most vulnerable through its social safety net programme (Bolsa Familia), and provided new credit lines for producers through its 'More Food' programme. The

latter gave producers an opportunity to increase production and to benefit from rising world prices.[114]

Cash transfers should be adequate for a nutritious diet. However, many countries that are most vulnerable to food price shocks do not have the fiscal space to implement such policies. Financing instruments for low-income countries, such as those currently being considered by the International Monetary Fund to insure against food price risks, would go a long way to providing the necessary funds to finance social protection systems and other life-saving policy measures in low-income countries.[115] **Donors and international institutions should consider mechanisms to underwrite social protection and other life-saving policies for those countries that do not have the fiscal space to implement them.**

ADDRESSING THE DRIVERS

While agricultural markets are inherently volatile, policy responses by governments can play an important role in mitigating impacts and preventing food price spikes turning into large-scale food crises.

The G20's implementation of the Agricultural Market Information System and its associated Rapid Response Forum provides a crucial mechanism for major food producing states to share information, and coordinate policy responses in a way that calms volatility rather than exacerbating it. Information on stock levels at national and international levels is likely to play an important role in ensuring that governments and other stakeholders have the capacity to calm markets during times of crisis.

There is now an emerging consensus that increasing demand for biofuels is among the key drivers of high and volatile food prices. While governments should consider the impact of biofuel mandates, the likelihood of sustained demand points to an urgent need to consider new ways of ensuring that biofuel production can occur in a way that does not deplete stocks and therefore increase volatility.

RECOMMENDATIONS

We call on **developing country governments** to:

- invest in regionally held stocks for areas without private stocks or access to global markets
- strengthen social transfer programmes as key policy tools to combat hunger and malnutrition.

We call on **G20 governments** to:

- use the Agricultural Market Information System and Rapid Response Forum to ensure food producers respond with policies that contain rather than exacerbate volatility. Countries should commit to avoiding export restrictions and bans or other means that restrict the supply of staples on international markets and that can increase global food price volatility.
- scale up multi-year funding to support the establishment of social transfer programmes
- pursue mechanisms that minimise the impact of biofuel demand on food prices, particularly during price spikes.

We call on **the EU** to:

- address one of the underlying drivers of volatility and long-term price rises by dropping the Renewable Energy Directive's mandate that 10% of all EU fuels should come from renewable sources by 2020
- review sustainability criteria within both the EU's Renewable Energy Directive and the Fuel Quality Directive to include consideration of the impact on food security and nutrition.

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4 CONCLUSIONS AND RECOMMENDATIONS

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A HIGH PRICE TO PAY

The impact of rising and volatile food prices on children's nutrition and food security

We are approaching a new norm of high and volatile global food prices. Rising prices are pushing nutritious foods out of the reach of poor families and threatening to increase malnutrition.

The drivers of high and volatile food prices are numerous and complex – from climate change, high oil prices, and growing demand for biofuels, to food export bans, currency valuations, and speculation on commodity markets.

A High a Price to Pay argues for a rapid, global scale-up in commitment to address and mitigate the nutrition impacts of these trends. It puts forward a series of recommendations to address the impact of high and volatile food prices on poor families.

In particular, this report calls on governments of countries with high rates of malnutrition to invest in social protection and to build up food stocks. It urges the EU to drop its biofuel mandate – a key factor in pushing up food prices. And it calls on governments in food-exporting countries to coordinate to prevent policies that exacerbate food-price volatility.

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