

FOOD SECURITY (UPDATED)

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Global food prices have risen by 83% over the last three years, and the World Bank predicts that the surge in prices will have significant impacts for the world's poorest people.

This briefing gives an introduction to recent changes in food production and prices and considers the factors causing food price increases. It also provides some information on global, European and UK responses to what has become known as the food crisis.

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KEY POINTS

- Global food prices have risen 83% over the last three years, this will have significant impacts for the world's poorest people
- Population growth, dietary change, increased use of biofuels, extreme climatic events, oil price rises and speculation on commodities markets are key factors in increasing food prices
- Food security is not readily definable; common themes include the availability of affordable, nutritional and safe food, and the resilience of supply chains to significant disruptions
- The UN considers poverty and subsistence agriculture to be the root causes of national food insecurity, and expects food security to become an increasingly important issue for developing nations
- As a rich country, open to trade, Defra believes the UK to be well placed to access sufficient foodstuffs through the world market
- There have been a number of global, European, and UK responses to food price increases, including a UK discussion paper on food security and a review of the indirect effects of biofuels
- Scotland is currently developing a national food policy; the SDC has recommended that food security should be considered, particularly in relation to fair supply chains

INTRODUCTION

“Bread, milk and other foodstuffs [which] consumers think of as basic are nothing of the sort; instead, they are subject to a complex range of pressures stretching from London to China, from America to Australia. The price of that daily loaf is fluctuating according to what happens on the Minneapolis Grain Exchange, or the outlook for the Indian economy.” (Chakraborty [2008a](#))

Recent riots and unrest due to rising food prices in at least 37 countries have been widely reported. These increases have led some of the world's largest food producers to restrict exports, prompted panicked hoarding in Hong Kong and the Philippines, and set off violent protests in countries including Cameroon, Indonesia, Italy, Uzbekistan and Yemen. The Haitian president resigned following riots due to increasing food prices, and Egypt's president ordered the army to start baking bread. The head of the International Food Policy Research Institute has stated that “World agriculture has entered a new, unsustainable and politically risky period” (BBC News [2008a](#), Bradsher [2008](#), Economist [2008a](#), Economist [2008b](#), Lynas [2008](#), and Macwhirter [2008](#)).

Global food prices have risen 83% over the last three years, and the World Bank ([2008a](#)) predicts that the surge in prices will have significant impacts for the world's poorest people, who are likely to spend between 50-80% of their income on food. The World Food Programme is now providing food aid to an additional 100 million people who did not need it in late 2007 (BBC News 2008a), and there is potential for one hundred million people in developing countries to be pushed deeper into poverty, cancelling all the gains made during almost a decade of economic growth. Oxfam ([2008](#)) has predicted that at the current rate, 600 million people will be hungry by 2020.

Global food reserves are at their lowest for 30 years, currently less than half the recommended levels. There are about 50 days' worth compared to 120 days in the 1980s, and levels could slip further if world harvests continue to fail (Chakraborty 2008a, and Devine [2008](#)).

Since the industrial revolution, food imports have been a crucial element of Britain's food supply chains, and in the UK there have also been dramatic increases in the price of bread, pasta, rice, breakfast cereals, dairy products, beef and chicken (Department for Environment, Food and Rural Affairs (Defra) [2006](#), and Devine 2008).

COMMONLY USED TERMS

The terms food security, food justice and food sovereignty are becoming more widely used when discussing issues relating to poverty, famine, and supply and demand chains for comestibles.

Food Security

Discussions around food security can be confusing because, for developed economies, it is complex and interlinked. Various definitions exist, and common themes include (Defra 2006):

- availability of food
- access of consumers to affordable, nutritional and safe food
- resilience of, and public confidence in, the food system to endure significant disruptions

The Food and Agriculture Organization of the United Nations (FAO) Special Programme for Food Security ([1996](#)) states that:

“Food security exists when all people, at all times, have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.”

Defra (2006) notes that use of the word “security” often confuses understanding of the issues, and causes people to identify with a wider range of sustainability issues such as environmental protection, local food, health and nutrition, and self-sufficiency. Furthermore:

“...a discourse centred on ‘UK self-sufficiency’ is fundamentally misplaced and unbalanced. The real issues extend beyond the UK, beyond agriculture, beyond food.”

In short, a country will be better off if, rather than producing everything it consumes, it specialises in producing goods and services in which it is particularly productive. This advantage might occur because of climate, natural resources, plentiful land or labour, or specialist knowledge. It can then trade its surplus of these goods with other countries to obtain other goods it wishes to consume. With specialisation and trade, the country is able to consume more than it would have done if it had consumed only what it produced (i.e. 100% self sufficient). Food security is therefore “about identifying, assessing and managing risks associated with food supply” (Defra 2006).

Food Justice

The food justice approach views food security as a basic human right. It notes that globally, enough food is produced to feed the world at a level adequate to ensure that everyone can be free of hunger and fear of starvation, and that no one should live without enough food because of economic constraints or social inequalities. Food justice takes a collective approach to achieving food security by advocating fairer distribution of food, particularly grain crops, as a means of ending chronic hunger and malnutrition. The core of the Food Justice movement is the belief that it is not food that is lacking, but the political will to fairly distribute it regardless of the recipient’s ability to pay (Winston Griffith [2003](#)).

Food Sovereignty

Food sovereignty wants farmers, rather than transnational corporations, to control what they farm and how they farm it. It seeks to ensure that “communities have the right to define their own agricultural, pastoral, labour, fishing, food and land policies to suit their own ecological, social, economic and cultural circumstances”. The food sovereignty movement argues for a fundamental shift away from current farming practices, emphasising the need to support local food systems, domestic markets and small-scale agricultural production (Pimbert [2007](#)).

This briefing gives an introduction to food security in terms of recent changes in food production and prices and considers the factors causing food price increases. It also provides some information on global, European and UK responses to what has become known as the food crisis.

FOOD PRICES

Food prices are rising fast. In February 2008 the FAO Food Price Index averaged 157, up 23% from 2006 and 34% from 2005. In December 2007, the food price index averaged 184, the highest recorded monthly average since the start of the index in 1990 (FAO [2008a](#)). Evans ([2008](#)) notes that:

“While high price events are not unusual in agricultural markets ... the unusual feature of the current situation is that the price spike applies to almost all major food and feed commodities, rather than just a few of them.”

Two years ago, the United Nations (UN) ([2006a](#)) warned that it was necessary to “address the impact of weak and volatile commodity prices and support the efforts of commodity-dependent countries to restructure, diversify and strengthen the competitiveness of their commodity sectors”. In the last year however, the global price of corn has risen by 31%, rice has jumped by 74%, soya by 87%, and wheat by 130% (BBC News [2008b](#)).

The value of total agricultural output (all food and non-food crop and livestock commodities) has tripled in real terms since 1961, representing an average increase of 2.3% per annum, compared to global population growth of 1.7% per annum. Developing countries account for most of the growth in agricultural output, however high-value commodities such as livestock also account for a rising share in the total value of production (FAO [2007](#)).

It remains unclear whether ... [recent rises in commodity prices] signals a new paradigm for agricultural prices and, if so, what that might mean for agricultural development, poverty reduction and food security. (FAO 2007)

FACTORS CAUSING FOOD PRICE INCREASES

Increased Demand

Evans (2008) notes that:

“At present, the main drivers of increasing prices are on the demand side. Historically, demand growth for food has been about 1.5 per cent each year; now, however, it has risen to 2 per cent, and Goldman Sachs estimates that it will be as high as 2.6 per cent within a decade. The World Bank estimates that food production will need to grow by another 50 per cent by 2030 (and 85 per cent for meat) to fulfil projected demand.”

Population Growth

“Global population growth has been the major driving force for growth in food demand and production.” (FAO 2007)

World population is expected to increase from the current 6.7 billion to 9.2 billion by 2050. From 2050, world population is expected to increase by 30 million per year. Almost all of this increase is expected to take place in developing countries, and especially in the group of the 50 least developed countries. These countries may still have inadequate food consumption levels in 2050, and, therefore, there is significant scope for further increases in demand for food even when population growth slows down. (United Nations [2006b](#) & FAO 2007)

Dietary Change

“Diversifying diet patterns are moving away from starchy foods towards more meat and dairy products, which is intensifying demand for feed grains and strengthening the linkages among different food commodities.” (FAO [2008b](#))

Since the late 1960s global agricultural production has changed considerably. Output of cereals, oil crops, sugar, vegetables, eggs and meat has increased more than population growth rates, while the production of pulses and roots and tubers has declined relative to total population growth (FAO 2007). This has led some commentators (Monbiot [2008](#)) to note that enough food is produced for everyone in the world, however in 2008, 760m tonnes of grain will be:

“... snatched from the mouths of humans to feed animals. This could cover the global food deficit 14 times. If you care about hunger, eat less meat.”

Total meat production in developing countries rose from 27 million tonnes to 147 million tonnes from 1970 - 2005. Whilst the rate of growth in meat consumption is slowing, global demand is expected to increase by more than 50% by 2030.

Globally, livestock production is the largest user of agricultural land and accounts for almost 40% of the total value of agricultural production. In developed countries, this share is more than 50%. In developing countries, where livestock production accounts for a third of the value of agricultural production, its share is rising rapidly as a result of growth in income and changes in lifestyle and dietary habits. The rise in production and consumption of dairy and meat products in countries like China and India is primarily due to a desire for more western style diets due to rising incomes and urbanisation.

Until recently, a large proportion of livestock in developing countries were not raised for food, but for providing pulling power and manure and as capital assets that were only disposed of in times of emergency. Livestock were an integral part of agricultural systems, distributed among many owners and raised close to their feed supplies. This pattern is changing rapidly. Almost all of the growth in livestock production is now occurring in industrial systems, where meat production is no longer tied to a local land base for feed inputs or to supplying animal power or manure for crop production. (FAO 2007 & Naylor et al. 2005).

“Satisfying the increasing demand for animal food products, while at the same time sustaining the natural resource base and coping with climate change and vulnerability, is one of the major challenges facing world agriculture today.” (FAO 2007)

The FAO ([2006a](#)) has calculated that greenhouse gas emissions from livestock amount to more than transport, approximately 18% of total emissions, and that 1000 – 2000 litres of water is needed to produce 1kg of wheat, in comparison to 10,000 – 13,000 litres to produce 1kg of beef.

Heap ([2008](#)) notes that, depending on methods of husbandry and types of feedstocks, there are complex energy equations and climate change impacts from increasing livestock numbers. Ruminants such as cows and sheep produce methane, a greenhouse gas 20 times more powerful than carbon dioxide. Cows and sheep need 8kg of grain for every 1kg of meat they produce, pigs about 4kg. Chickens are the most efficient, needing 1.6kg of feed to produce 1kg of meat. It is possible to employ ‘zero grazing’ techniques whereby ruminants are kept indoors, and manure/emissions are contained and used for bioenergy, however this raises ethical

questions relating to animal welfare. Also upland-grass-fed sheep and cattle graze on land where little else will grow and their feeding habits tend to encourage wildlife.

Restricted Supply

Biofuels

In recent years the changing world energy situation has generated intense discussion about biofuels, much of it promising a source of environmentally friendly energy that would also be a boon to the world's farmers. At the same time, sceptics argue that biofuel production threatens food supplies for the poor while failing to achieve many of its alleged environmental benefits.

SPICe Briefing 08-07 on Biofuels (Reid [2008](#)) discusses these issues in detail; however it should be noted that the effects of biofuel production vary widely depending on what type of crop is produced, and where and how it is produced and processed.

EU law on biofuels is implemented in the UK by the Renewable Transport Fuel Obligation (RTFO). This came into effect in April 2008 and obliges suppliers of fossil fuels to ensure that, by 2010, 5% of all sales by volume are from biofuels. The European Commission has also proposed a further binding target of 10% biofuels use by 2020 (Department for Transport [2008a](#)). The main European biofuel crop is oilseed rape; however sugar beet is also grown.

In the USA, a biofuels policy based primarily on energy security rather than greenhouse gas emission reduction has led farmers to plant less wheat, or to move it to less fertile ground in order that they might capitalise on substantial subsidies to grow corn (maize) for ethanol. It is estimated that in 2008, 25% of the American corn crop will be turned into biofuel (Faiola [2008](#)).

The International Food Policy Research Institute (IFPRI) ([2008](#)) has recently considered "Biofuels and Grain Prices: Impacts and Policy Responses", and states:

"Expanded production of ethanol from maize, in particular, has increased total demand for maize and shifted land area away from production of maize for food and feed, stimulating increased prices for maize. Rising maize prices, in turn, have affected other grains. On the demand side, higher prices for maize have caused food consumers to shift from maize (which is still a significant staple food crop in much of the developing world) to rice and wheat. On the supply side, higher maize prices made maize more profitable to grow, causing some farmers to shift from rice and wheat (and other crop) cultivation to maize cultivation. These demand- and supply-side effects have tended to increase the price of rice and wheat and other crops."

The IFPRI (2008) further note that it is:

"... important to find ways to keep biofuels from worsening the food-price crisis. In the short run, removal of ethanol blending mandates and subsidies and ethanol import tariffs, and in the United States—together with removal of policies in Europe promoting biofuels—would contribute to lower food prices. But for the longer term, it is even more critical to focus on increasing agricultural productivity growth and improving developing-country policies and infrastructure related to the storage, distribution, and marketing of food. These factors will continue to drive the future health of the agricultural sector and will play the largest role in determining the food security and human well-being of the world's poorer and more vulnerable populations."

According to an article in *The Guardian* in July 2008 (Chakraborty [2008b](#)), a confidential World Bank report has found that biofuels have made a substantial contribution to the increase in global food prices. The article states:

“The basket of food prices examined in the study rose by 140% between 2002 and this February. The report estimates that higher energy and fertiliser prices accounted for an increase of only 15%, while biofuels have been responsible for a 75% jump...”

Oxfam ([2007](#)) has called for the EC’s Renewable Energy Roadmap to include social standards and to develop mechanisms by which targets can be revised if found to be contributing to the destruction of vulnerable people’s livelihoods. They claim that current targets pose a serious threat to vulnerable people at risk from land-grabbing, exploitation, and deteriorating food security. The Royal Society for the Protection of Birds ([2008](#)) has also called for policies and standards that deliver only sustainable biofuels. In particular:

- no further biofuels targets in Europe
- no immediate obligation to include biofuels in UK transport fuel
- new investment in research and development for truly clean fuels
- the development of a strategic approach to land use, to help ensure sustainable bioenergy
- support to help developing countries manage their natural resources, including their wildlife, sustainably
- policies to cut emissions from transport in sustainable ways

Extreme Climatic Events

Examples of extreme climatic events that have affected food security include the multiyear drought in Australia which has caused wheat prices to rise. This is considered in more detail in Annex [One](#).

British vegetable production is also vulnerable to extreme weather events. Over a third is concentrated on the Norfolk Fens, which could flood with saltwater as a result of rising sea levels, making cultivation impossible. In 2007, the extremely wet summer flooded the world’s largest pea-producing centre, Humberside. Nearly 25% of the crop was ruined, which led to a 40% increase in the price of a bag of peas (Blythman 2008).

“Climate change particularly is likely to bring new challenges for the food security, not of rich countries like the UK, but of less developed, tropical, regions.” (Defra 2006)

There are still large uncertainties as to when, how and where climate change will have an impact on agricultural production and food security, but it is generally agreed that agricultural impacts will be more adverse in tropical areas than in temperate areas (FAO 2007).

The Stern Review on the Economics of Climate Change (HM Treasury [2007](#)) predicted slight to moderate reductions of potential crop yields, and called for more research into climate resilient crop varieties that will be more enduring to drought and flood.

The FAO (2007) notes that:

“While the adverse impacts of climate change will affect the poor disproportionately, actual impacts will depend at least as much on socio-economic conditions as on the biophysical processes involved. Policies and investments supporting trade, sustainable agricultural practices and technological progress can help mitigate the effects of climate

change on agriculture and food security while increasing the capacity of people and societies to adapt.”

Oil Prices

National and international energy security is fundamental to food security, however recent spikes in oil prices have highlighted the reliance of food production chains on petrochemical derived pesticides and fertilisers, mechanised sowing and harvesting techniques, heated greenhouses, energy intensive food manufacturing, refrigerators, and long distance shipping. As economies such as India and China develop and require more energy, supplies dwindle, and peak oil production is reached and surpassed, energy prices and food prices are expected to be closely linked (Evans 2008, Wolf [2008](#) & Defra 2006).

In the UK the effects of high oil prices on fishermen have recently been highlighted. The cost of nets and other petroleum based products is rising as well as the direct cost of fuel. BBC News ([2008c](#)) reports that weekly fuel bills for fishermen have more than doubled since June 2007, and shows ([2008d](#)) that oil prices per barrel have risen from \$71 to \$136.

Whilst it has been previously noted that Defra (2006) does not consider self sufficiency to be an option for the UK, Blythman (2008) states:

“The notion that it is sensible for any country to be more or less self-sufficient in food can be dismissed as a romantic attachment to a bygone era. Who needs home production when, as an affluent country, we can surely rely on our powerful supermarkets to snap up supplies of any commodity that is in short supply? But can we? The globalised food sourcing and distribution system on which we depend is predicated on a reliable, affordable supply of oil. This flow has made it more profitable to import frozen chicken breasts from Thailand and Brazil, where labour is cheap, than to pay British poultry producers higher costs. But this economic equation could change overnight if the oil tap was reduced to an expensive trickle.”

Other Relevant Factors

Resource Use

Agriculture accounts for 70% of global water use and nearly 95% in many developing countries, almost all for irrigating crops. Per capita use of water has decreased from about 700 to 600 cubic metres per year since 1980 and water productivity in agriculture increased by at least 100% between 1961 and 2001. Nevertheless, total water use is still increasing and is expected to continue to increase because of population growth, urban expansion and increasing industrialisation (Millennium Ecosystem Assessment [2005](#)).

It was recently reported that more than 1.2 billion people live in areas of physical water scarcity, and by 2025 over 3 billion people are likely to experience water stress. The gap between available water supply and water demand is increasing in many parts of the world, limiting future expansion of irrigation. In areas where water supply is already limited, water scarcity is likely to be the most serious constraint on agricultural growth and development, especially in drought-prone areas (Comprehensive Assessment of Water Management in Agriculture [2007](#)).

The UK Government's Chief Scientific Adviser has recently pointed out that agriculture industry needs to double its food production, whilst using less water than today, to respond to the effects of climate change (including decreased rainfall and crop failure) (Sustainable Development Commission Scotland [2008](#)).

Speculation

“Another shorter term supply-side issue is that some current price volatility is attributable to speculative investors seeking safety in commodity markets from the weak dollar and from falling equity and bond markets – although opinion is divided over how significant a factor this is.” (Evans 2008)

Macwhirter (2008) notes that the food shortage crisis has developed over the last 18 months, and that this is primarily due to speculation in commodity futures following the collapse of the financial derivatives markets. He states:

Desperate for quick returns, dealers are taking trillions of dollars out of equities and mortgage bonds and ploughing them into food and raw materials. It's called the "commodities super-cycle" on Wall Street, and it is likely to cause starvation on an epic scale.

Alternatively, Wolf (2008) argues that there has been a global shift in relative prices, with commodities, particularly energy, becoming much more expensive, relative to other goods, and that the strength of demand in emerging economies alongside biofuels policies in the developed world are the cause of food price increases.

All in all, the jury is still out on whether recent food price rises will be sustained or not. Many commentators, including the World Bank, estimate it will take ‘several years’ for supplies to increase to rebuild stocks and allow prices to fall. However, over the longer term, structural factors – a population forecast to rise to 9.2 billion by 2050, rising affluence and the ... ‘scarcity trends’ referred to above – suggest the possibility of a structural, rather than merely cyclical, shift. (Evans 2008)

FOOD SUPPLY CHAINS

GLOBAL ISSUES

“Poverty and subsistence agriculture are root causes of national food insecurity. National food security is hugely more relevant for developing countries than the rich countries of western Europe.” (Defra 2006)

The World Bank ([2008b](#)) notes that high food prices are “a matter of daily struggle for more than 2 billion people.” Furthermore, these high prices “threaten to increase malnutrition, already an underlying cause of death in over 3.5 million children a year.”

As previously noted food supply chains at a global scale are complex and varied. Basic commodities such as wheat, corn, rice and soya are transported around the world; global markets largely control what food is grown and where it is sent; therefore many of the poorest states, as net importers, are dependent on fluctuations in the markets, and the policies of the countries that grow it.

Figure 1 shows that developed nations such as the United States, Canada, Russia and Australia export high percentages of the global wheat harvest to less developed countries such as Pakistan, Indonesia and Nigeria.

Figure 2 shows the impact of food price increases on trade balances¹. Countries in red are expected to suffer the biggest trade balance losses from higher food prices, whilst countries in blue are expected to show the biggest gains. In short, rising prices are expected to improve the trade balance of major food exporters, but major importers stand to see a greater deficit.

Figure 1 (BBC 2008a)

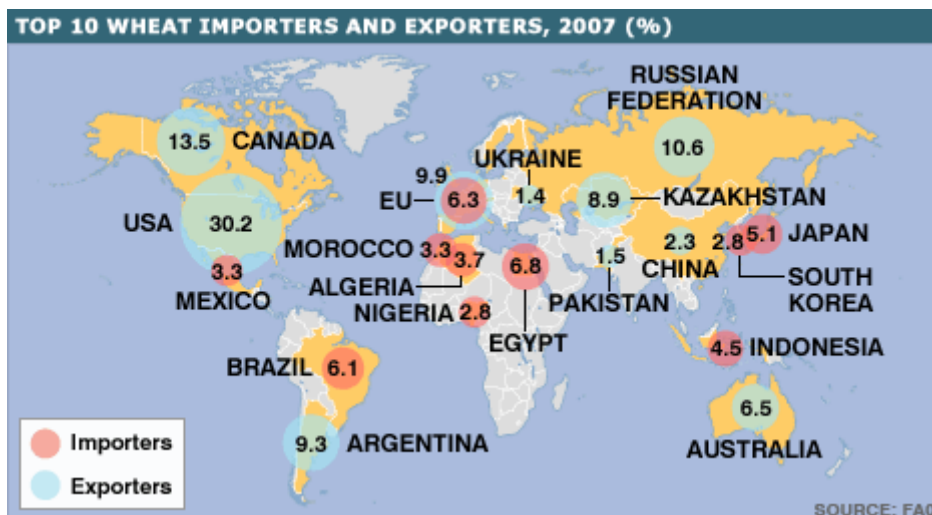
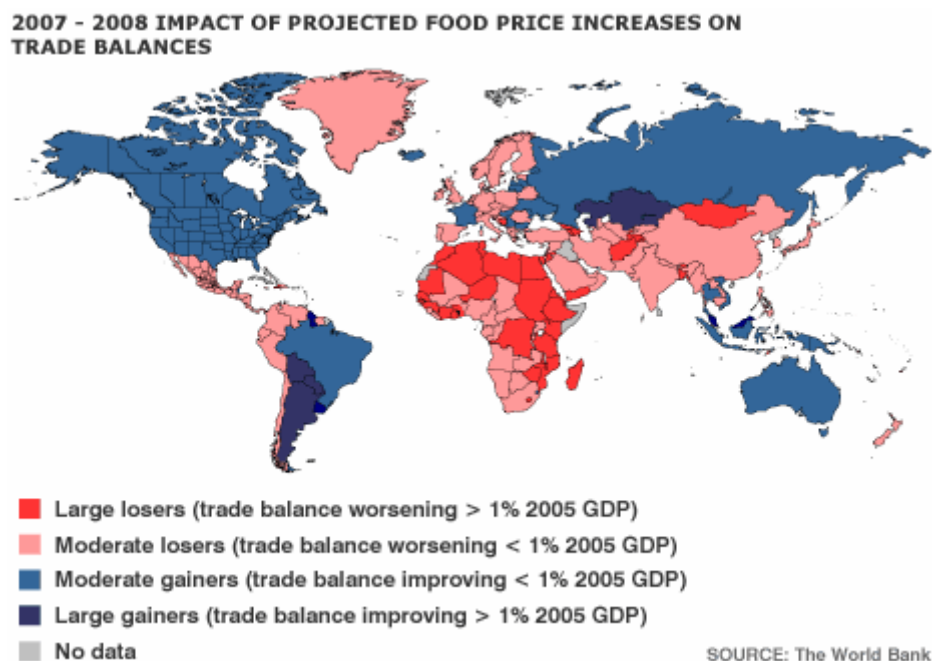


Figure 2 (BBC 2008b)



At present, 21 of 36 countries in a food security crisis are in Sub-Saharan Africa, which imports 45% of its wheat and 84% of its rice (World Bank 2008b). These crises are particularly enhanced by civil war in a number of fragile states.

Most countries in South Asia are net food importers and have suffered severe trade shocks. According to a recent World Bank assessment (2008b) a 2kg bag of rice now costs half the daily income of a poor family in Bangladesh, and in Indonesia, a 10% rise in rice prices means 2 million more people will be pushed into poverty.

¹ The difference between the value of imports and exports that a nation makes.
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Case study examples of global issues relating to food security are available for Australia and the Philippines in Annexes [One](#) and [Two](#).

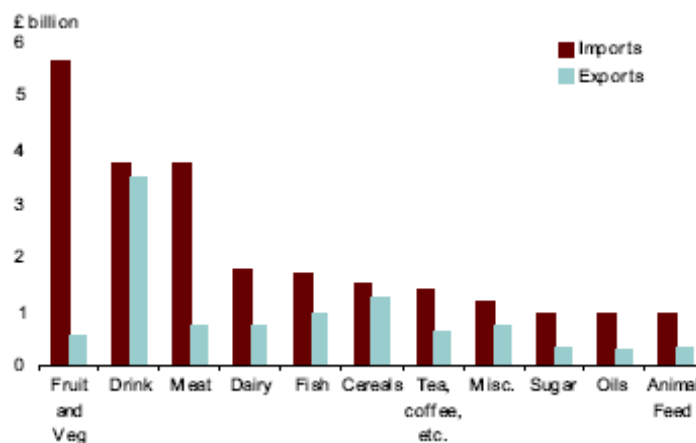
Global wheat prices are expected to drop this year following improved rainfall in Australia, and farmers reacting to high prices by planting more. Supplies are expected to rise to 131 million tonnes by 30 June 2009, a rise of 17% from a year earlier (Dreibus [2008](#)).

UK ISSUES

Defra (2006) notes that as a “rich country, open to trade, the UK is well placed to access sufficient foodstuffs through the world market”. Furthermore, “international trade enhances global food security”. As previously noted Defra (2006) considers that discussions on UK self sufficiency are “fundamentally misplaced”, and should be had in the wider context of food security, however it has recently been noted that “our food production capacity has lost vital critical mass” (Blythman [2008](#)), and there have been calls for a national policy of food self-sufficiency (Higgins [2008](#)).

Defra ([2007](#)) calculates self-sufficiency “as the value of production of raw food divided by the value of raw food for human consumption”. The most recent figures show that in 2006 the UK was 58.1% self-sufficient in food, down by 21.2% since 1995. This decline has been attributed to the high level of the pound compared to the euro, the impact of outbreaks of disease and the beef export ban introduced in 1996.

Table 1 (Defra 2007) shows UK trade in different food groups for 2005.



The following points are relevant:

- the value of imports is greater than the value of exports in the broad categories of food, feed and drink (all the food groups shown above)
- the group for which the UK has the largest trade deficit is fruit and vegetables. In 2005 the value of imports was £5.6 billion giving a trade gap in fruit and vegetables of £5.1 billion
- in 2005, drink had the smallest trade deficit at £0.2 billion
- the second largest groups in terms of imports in 2005 were drink and meat both with imports of £3.7 billion
- drinks are the largest food and drink export category by far with a total export value of £3.5 billion. Cereals and fish are the groups with the next largest export values with £1.2 billion and £0.9 billion respectively
- since 1995 the UK's trade gap in food, feed and drink has widened by 66.6%

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Blythman (2008) notes that Britain exports 25-30% of its lamb to France, roughly the same amount as it imports from New Zealand. Similarly, British reared beef constitutes 75% of national consumption, the rest coming from Holland, Germany, Uruguay, Namibia and Botswana.

In spite of having good access to globally produced foodstuffs, the cost of food in the UK has recently increased dramatically (Office for National Statistics [2008](#)). Annexe [Three](#) shows % change over 12 months to 15 July 2008 in Retail Price Index figures for a variety of comestibles. The following increases are of interest:

- all food: 12.2%
- butter: 36.5%
- eggs: 35.9%
- bread: 20%
- cereals²: 17.5%
- pork: 24.7%
- beef: 19.8%
- poultry: 23.7%
- vegetables: 9.9%
- fruit: 10.2%

Scotland

The Scottish Agriculture, Output, Input and Income Statistics (Scottish Government [2008a](#)) show that the provisional real terms increase in Total Income From Farming (TIFF) in 2007 was 11.9%. The details behind some of the increases in TIFF between 2006 and 2007 are summarised below:

- the value of gross output is estimated to have increased by 12.7%. The biggest increase was in the cereals sector, mainly due to a 71.8% increase in barley output values
- cereals output increased by 57.3%. This increase is due to market price increases for all cereals, in particular wheat where the average wheat price rose in 2007 by 42.6% to £117.60 per tonne
- within the cereals sector there was an increase in agricultural area of 1.4%. However, average yields decreased by 6.6%
- horticulture output value has increased by 7.4%. This included increases of 9.3% in vegetables, 10.7% in flowers and nursery stock and 0.5% in fruit. These rises were primarily due to increases in area and prices received for carrots, mushrooms and broccoli. The main driver for the increase in flowers and nursery stock was an increase in the value of protected crops
- the output value of finished cattle and calves has increased in 2007 by just over 1%, mainly due to an increase in output values for cows and bulls.
- poultry sector output values increased by 2.8% in 2007

² Including wheat, oilseeds, barley and oats

- the value of livestock products increased by 8.3% in 2007. This was driven by an increase in the average price per litre for milk which resulted in an overall rise in the output value for milk and milk products 8.4%
- there was an overall increase in input items in 2007 of 9.3%, primarily due to an increase in feed costs of 19.2%. Fuel and oil costs increased by 7.3%, fertilisers and lime by 7.1%, seeds by 10.2% and other farm costs by 3%

Scottish specific data on retail prices is not readily available, however Devine (2008) notes that shop-price inflation in Scotland is higher than the rest of the UK, and that the price of the average supermarket shopping basket has risen by 15%. It has been forecast that this could increase by 50% by 2016. Scotland is 40% self sufficient in cereal grains, most of which goes into the whisky industry and to animal feed; the balance is imported from England and Canada.

In terms of self-sufficiency, it is thought that there is enough arable land to provide for Scotland's population; however the national diet and farming regimes would have to change significantly (Gregory in Devine 2008). Bread and potatoes would become staples, and more focus would be made on fish and shellfish, which currently make up the largest proportion of total food exports. The biggest markets for Scottish produce - especially premium fresh fish - are France, Spain and Italy, followed by Germany, Ireland and the USA.

MEASURES TO IMPROVE FOOD SECURITY

INTERNATIONAL

United Nations: In April 2008, the UN ([2008a](#)) announced a series of measures in the short to long term to deal with the food crisis, and that a task force would take them forward. The most immediate priority was for the international community to urgently fund the emergency requirement of \$755 million for the World Food Programme. The FAO had also proposed an emergency initiative to provide low-income deficit countries with the seeds and inputs to boost production, and was calling for \$1.7 billion in funding.

A UN conference in June 2008 sought ways to address food security issues in the face of soaring food prices and the new challenges of climate change and energy security. It concluded with the adoption of "a declaration calling on the international community to increase assistance for developing countries, in particular the least developed countries and those that are most negatively affected by high food prices" (UN [2008b](#)).

The International Union for Conservation of Nature (IUCN) ([2008](#)) has however stated that the declaration "fell short of showing the political will needed to address the underlying causes of the food crisis". Furthermore, whilst the declaration:

"...mentioned the role of biodiversity in ensuring the world has sufficient food, it did not place enough emphasis on it. [It] expressed no commitment to stop the causes of biodiversity loss and ecosystem degradation that are affecting food production systems."

On 25 September 2008, the UN will convene a high level meeting to renew commitments to achieving the Millennium Development Goals by 2015 and to set out plans and practical steps for action (UN [2008c](#)). One of these goals is having the number of the world's hungry.

In this context, it is also worth noting that the UN has designated 2008 as the International Year of the Potato. The UN is seeking to focus world attention on the role the potato can play in

defeating hunger and poverty. It is thought that potatoes will have an increasingly valuable role to play in food security because it is fast growing, adaptable to many different climates and soil types, has high yields, and is responsive to low inputs. In recent years, potato output has declined in Europe, however in developing countries production has nearly doubled since the early 1960s. China, Russia and India are currently the world's top producers.

G8 Summit: At the G8 Summit in Japan on 7-9 July 2008 the G8 leaders issued a statement on global food security (G8 Summit [2008](#)). The G8 leaders state that they will “work with the international community in forming a global partnership on agriculture and food, involving all relevant actors, including developing country governments, the private sector, civil society, donors, and international institutions”. The statement also refers to the need for a “robust world market and trade system for food and agriculture” and it states that “we will work toward the urgent and successful conclusion” of the Doha trade negotiations. In addition, the G8 leaders recognise “the need for a wide range of mid to long-term measures to tackle the issue of food security and poverty, inter alia, the importance of stimulating world food production and increasing investment in agriculture”. The statement refers to various measures including:

- Reversing the overall decline of aid and investment in the agricultural sector, and achieving significant increases in support of developing country initiatives;
- Promoting agricultural research and development;
- Supporting improvement of infrastructure in developing countries;
- Assisting in the development of food security early warning systems;
- Supporting country led strategies in adapting to the impact of climate change;
- Ensuring the compatibility of policies for the sustainable production of biofuels with food security and accelerating development of second-generation biofuels;
- Mainstreaming food security objectives into the development policies of donor and recipient countries.

World Trade Organisation: The Doha round of World Trade Organisation negotiations, which began in 2001, aims to liberalise world trade. The UN and G8 have both noted the importance of the Doha round to improving global food security. From 21-30 July 2008, the WTO held meetings in Geneva to progress the Doha round. However, on 30 July 2008, it was reported that there was a failure to reach agreement (BBC [2008e](#)). The negotiations failed because the US could not agree with China and India on import rules.

EUROPE

In May 2008 the European Commission ([2008a](#)) adopted a Communication setting out potential policy responses to mitigate the effects of rising global food prices. These include:

- Short-term: the Health Check of the Common Agricultural Policy and monitoring of the retail sector under the Single Market Review in line with competition and internal market principles.
- Longer-term: initiatives to enhance agricultural supply and ensure food security including the promotion of sustainable criteria for biofuels and development of future generations of biofuels in Europe and at international level, and strengthening agricultural research and knowledge dissemination especially in developing countries.
- Initiatives to contribute to the global effort to tackle the effects of price rises on poor populations including: a more coordinated international response to the food crisis, in particular in the UN and G8 context; continued open trade policy offering preferential

access to the EU market to the world's poorest countries; swift response to immediate short-term humanitarian needs; and targeting development aid at longer-term projects to revitalise developing country agriculture.

On 19 June 2008, the Commission issued a further memo on food prices, which refers to biofuels policy, the Common Agricultural Policy, and assistance for developing countries (European Commission [2008b](#)). The European Council considered these Communications at its meeting on 19-20 June (European Council [2008](#)).

On 19 July, the Commission announced a proposal to establish a special fund to help developing countries respond to soaring food prices (European Commission [2008c](#)). The fund would be worth €1 billion and would operate in 2008 and 2009. It would give priority to supply-side measures, improving access to farm inputs such as fertilisers and seed, possibly through credit, and to safety net measures aimed at improving productive capacity in agriculture.

UNITED KINGDOM

International and EU cooperation: In April 2008, the Prime Minister, Gordon Brown, wrote to the Chair of the G8 Group, the Japanese Prime Minister, proposing that he ask the World Bank, IMF and UN to work urgently together to develop an international strategy to address the food crisis. The letter suggested responses in a number of areas including trade, improving developing country agricultural production, support for agricultural research, examination of biofuels, and short-term World Bank and IMF support.

In May 2008, the UK Chancellor, Alistair Darling, stated that the European Economic and Financial Affairs Council should seek to agree an agenda for tackling the problem of rising food prices focused on a number of core elements including (HM Treasury [2008](#)):

- working with international partners to develop an international strategy which includes, amongst other measures, better support for agricultural and rural development in the poorest countries
- reductions in import tariffs and long-term reform of EU tariffs via an ambitious trade deal in the Doha Development Agenda trade round
- fundamental reform of Europe's agricultural sector including phasing out all elements of the Common Agricultural Policy that are designed to keep EU agricultural prices above world market levels, an end to direct payments to EU farmers and other measures
- a close examination of the effects of EU biofuels policy, including a full assessment of its effect on food prices, now and in the future.

Aid to developing countries: On 11 June 2008, the UK Secretary of State for International Development, Douglas Alexander, was asked what steps the Government had taken to address food shortages in developing countries. The response stated:

“The UK Government have announced a £538 million package. This includes both short-term and long-term measures: £400 million for agricultural research over five years; £30 million to the World Food Programme; £22 million for the Ethiopia safety net; £8 million for nutrition monitoring; £38 million for road building in Democratic Republic of Congo, £32 million for social protection in Mozambique and Bangladesh and £6.5 million for food aid and agricultural inputs for Afghanistan. In addition, new commitments for budget support were announced for Ghana, Uganda and Malawi totalling £217 million.” (House of Commons [2008](#))

Policy on food security: On 7 July 2008, the UK Department for Environment, Food and Rural Affairs (Defra) published its final report on food policy entitled [Food Matters: Towards a Strategy for the 21st Century](#). (Defra 2008a). Key recommendations include:

- The UK should take a leadership role in looking at how the world can meet the twin challenges of climate change and global food security.
- The Government should launch a public engagement about a more joined-up approach to UK food policy that pursues fair prices, safer food, healthier diets and better environmental performance;
- The UK must continue to focus on fair prices, access to food and food security through competitive markets;
- A new scheme should be launched to get the public sector in England providing healthier, more environmentally sustainable food. (Defra [2008b](#))

On 17 July 2008, Defra published a discussion paper entitled [“Ensuring the UK’s Food Security in a Changing World”](#) (Defra 2008c). It states that, “the UK currently enjoys a high level of national food security...We produce much of our food ourselves, and because the UK is a developed economy, we are able to access the food we need on the global market.” The paper considers a number of food security issues and outlines the action being taken by the UK Government to deal with them. Some of the key points in the paper are:

- Effectively functioning markets are fundamental to ensuring global food security. The Government is committed to continuing to liberalise markets through the Doha round of trade negotiations and reform of the Common Agricultural Policy.
- Climate change presents one of the greatest threats to increased agricultural productivity. The Government is leading the EU and world in tackling climate change. In addition it is investing in research and development and capacity building to increase resilience in countries that will be most affected by climate change;
- UK food production needs to respond to the growing global demand for food;
- One of the most important contributions the UK can make to global, and UK, food security is having a thriving and productive agriculture sector in the UK, operating in a global market, responding to what consumers want;
- Self-sufficiency would not insulate the UK against disruptions to the domestic supply chain and retail distribution system;
- Maintaining a diversity of food supply is crucial to UK’s food security (currently no single country accounts for more than 13% of UK food and drink imports);
- Risks to UK food security are more likely to come from sudden disruptions to supply chains than lack of food – the government is working with retailers and food suppliers to build the resilience of food supply chains and to reduce their energy dependence;
- A strong and stable UK economy is the most effective long-term means of tackling poverty, and therefore the affordability of food in the UK.

The discussion paper also proposes a set of food security indicators in five areas to allow the UK Government to assess and monitor food security over time: (1) global availability; (2) diversity of supply; (3) food chain resilience; (4) affordability; and (5) safety and confidence.

Defra intends to publish a more detailed statement of food security policy later in 2008.

Review of biofuels: In February 2008 the UK Government asked the Renewable Fuels Agency (Chaired by Professor Ed Gallagher) to undertake a review of the indirect effects of biofuels (Department for Transport [2008b](#)). The review was initiated “in light of new evidence suggesting that an increasing demand for biofuels might indirectly cause carbon emissions because of land

use change, and concerns that demand for biofuels may be driving food insecurity by causing food commodity price increases.” The review report, published in July, found that “...increasing demand for biofuels contributes to rising prices for some commodities, notably for oil seeds, but that the scale of their effects is complex and uncertain to model.” (Renewable Fuels Agency [2008](#)). The report’s main conclusion was that:

There is a future for a sustainable biofuels industry but that feedstock production must avoid agricultural land that would otherwise be used for food production. This is because the displacement of existing agricultural production, due to biofuel demand, is accelerating land use change and, if left unchecked, will reduce biodiversity and may even cause greenhouse gas emissions rather than savings. The introduction of biofuels should be significantly slowed until adequate controls to address displacement effects are implemented and demonstrated to be effective. A slowdown will also reduce the impact of biofuels on food commodity prices, notably oil seeds, which have a detrimental effect upon the poorest people.

The Government’s response to the report stated that it will:

- Consult on slowing down the rate of increase in the Renewable Transport Fuel Obligation so that the level of biofuels will increase to 5% by 2013/14 rather than 2010/11;
- Continue to support the EU target of 10% renewable transport fuels by 2020, but argue that the target is conditional on the evidence showing that it is being delivered sustainably and without impacts on food prices;
- Press that the EU sustainability criteria for biofuels, currently being negotiated, should address indirect, as well as direct, effects on land use (Department of Transport [2008c](#)).

SCOTLAND

Parliamentary debate: In May 2008, the Scottish Parliament debated the issue of food security. The motion adopted by the Parliament:

- Expressed concern at the potential for global food shortages; noted the recent cost increases in many basic food products here in Scotland, with food price inflation now exceeding 6%; and further noted that many developing countries are experiencing growing social unrest as a result of food pressures; and
- Called on the Scottish Government, the UK Government, the European Union and other relevant bodies to work closely, and with the appropriate urgency, to seek solutions that take account of the growing pressures on agriculture from both climate change and the rush to biofuels, as well as the peak in oil production; and
- Recognised the role of Scotland's primary producers in ensuring the long-term capacity and capability of our food supply, and called on the Scottish Government to encourage the development of local supply chains through public procurement, address the imbalance in power between the big supermarkets and our food producers, reduce the regulatory burden on farmers, and ensure that our primary producers operate on a level playing field with foreign competitors. (Scottish Parliament 2008a).

Government action – food policy: The Scottish Government is currently developing a national food policy, which seeks to join up “government policy on every part of the food chain from farm gate to plate”. In January 2008, it published a consultation paper (Scottish Government [2008b](#))

and on 19 June 2008, the Government published an analysis of responses to the consultation (Scottish Government [2008c](#)). The top 10 topics in responses were:

- Diet and nutrition (68%)
- Local food and local economies (49%)
- Health promotion (44%)
- Education in schools (39%)
- Access to food (38%)
- Adult education (35%)
- Farming industry (33%)
- Environmentally friendly food production (33%)
- Local food and communities (30%)
- Food labelling (28%)

Food security did not feature as a topic although related topics included food prices; “external factors affecting food supply (issues such as energy prices, EU legislation, global markets and climate change); and “capacity for food production”. The paper comments on these issues:

- Food prices: “Although the proportion of household expenditure accounted for by food has declined in recent decades, it remains significant for a segment of low-income consumers. This has been exacerbated by recent trends on international commodity markets, but can also be exacerbated at a local level by limited choice of food outlets – the notion of food deserts. Policy responses may focus on increasing effective purchasing power, either by increasing the availability of affordable food (eg grow your own initiatives, increased local competition) and/or enhancing target consumers’ income through benefit transfers (which could include...food stamps)”;
- External factors: “The biological underpinnings of food production make it susceptible to random variations in factors such as weather conditions or the incidence of pests and diseases. This can be exacerbated by the reactions of international markets to fluctuations in available supplies, plus changes in demand arising from global economic development (e.g. China) and policy signals (e.g. biofuels). Consequently, domestic supply chains are subject to factors outwith local control. Policy responses at the firm level might include encouragement for flexible production systems and the adoption of risk management, but also approaches to security of supply at the national level”.
- Capacity for food production: “Interest in this topic stems mainly from increasing global concern over food security given pressures such as climate change and rising demand. Policy responses could include renewed attention to domestic self-sufficiency, although storage, trade, demand management and increased purchasing power from greater economic prosperity are perhaps more important”.

On 19 June 2008, Cabinet Secretary for Rural Affairs and Environment, Richard Lochhead, announced five key themes for developing the national food policy:

1. Supporting the sustainable economic growth of the food and drink industry;
2. Supporting consumers and working with the food and drink industry to support healthier and more environmentally sustainable choices through better food education about the impact on health and environment;
3. Celebrating and enhancing Scotland’s reputation as a Land of Food and Drink
4. Walking the talk – getting the government to lead the way.
5. Affordability, access and security in relation to food. (Scottish Government [2008d](#)).

Mr Lochhead also announced a series of new food policy measures including “an inquiry into affordable access to food, in light of the global rise in food prices” (Scottish Government 2008d).

Government action – other initiatives: Other relevant Government initiatives include:

- *Contingency planning:* The Scottish Government has “established a food group under the Resilience Advisory Board for Scotland structure to bring together key people to define what the issues are that need to be considered and what more the government could do to work with the food sector to tackle vulnerabilities during an emergency. The group met for the first time on 15 May 2008” (Scottish Parliament 2008b);
- *Climate change and agriculture:* The Agriculture and Climate Change Stakeholder Group (2008) has published a report on climate change and Scottish agriculture. The report looks both at adaptation of agriculture to the consequences of climate change and the role of agriculture in reducing greenhouse gas emissions. The Scottish Government (2008e) has issued an initial response to the recommendations in the report.
- *Rural land-use study:* The Scottish Government is planning to conduct a study into rural land use. An announcement about this is expected on 29 August 2008.

Sustainable Development Commission: The Sustainable Development Commission (SDC) Scotland’s (2008) response to the Government’s consultation on food policy notes that the fundamental tenets of food supply chains are changing, and that this will impact on what Scotland imports and exports. It also states:

“Accelerating food price inflation means future food security must be considered, particularly in relation to fair supply chains. Scotland must assess what it produces, how and where, to ensure sustainable food security. Land use and ways in which lowland meat can be made more sustainable must be considered.”

The SDC recommends that the Scottish Government reviews “the impact of the rapidly changing world food situation on Scotland’s food economy [and] that this be seen as an opportunity to build the goal of sustainable development into the existing food economy”.

ANNEX ONE: AUSTRALIA

The drought in Australia, which began in 2002, is regarded as one of the worst on record. The effect of the drought on Australia's crop production and exports (particularly wheat and rice) is seen as one of several factors contributing to rising global food prices (BBC News 2008f & Bradsher 2008).

Australia is one of the world's largest wheat exporters. In 2001/02, it produced 22.1 million tonnes and exported 16.1 million tonnes, which accounted for over 15% of world wheat exports (Australian Bureau of Agricultural and Resource Economics (ABARE) [2006](#), [2007](#)). Due to the prolonged drought, in 2006/07 Australia produced only 10.6 million tonnes and exported 8.7 million tonnes. In 2007/08, wheat production is estimated to be 13.1 million tonnes, which is an increase on the previous year but still 39% below the five-year average (ABARE [2008](#)).

Australia contributes a small but significant proportion of the 27 million tonnes of annual world rice trade (ABARE 2007). Prior to 2002/03, it exported about 620,000 tonnes per year, around 80% of what it produced (Wahlquist [2008](#)). In 2006-07, it produced only 161,000 tonnes and the forecast for 2007-08 is just 18,000 tonnes (ABARE 2008). The area planted to rice last year was the smallest since the industry began in the 1920s (ABARE 2008). Some farmers are now abandoning rice to plant less water intensive crops like wheat or wine grapes (Bradsher 2008).

The Reserve Bank of Australia ([2008](#)) has recently assessed the future prospects for Australian agriculture. It notes that "the outlook for climatic conditions in the farm sector has improved over recent months" and that many of the cropping regions have recently had above-average rainfall. The Reserve Bank considers that the outlook for farm output in 2008/09 "is becoming more positive" but looking further ahead it states, "given the extent of earlier dryness in most agricultural regions, it is likely that a sustained period of well-above-average rainfall will be needed to return the irrigated sector to more normal conditions over the medium term."

ANNEX TWO: THE PHILIPPINES

In the Philippines, the world's largest rice importer, the price has risen by nearly 70% in the last year, meaning that in some areas the average family's expenditure on food currently exceeds its income by 23%. Demand now exceeds supply due to a rising population, fixed land resource, and limited yields due to high-altitude paddy fields. The Philippines is expected to import in 2.7m tonnes of rice in 2008, representing almost 10% its total requirement for a population of 91 million that is growing annually by more than 2%, one of the fastest rates in the world (Watts [2008](#)).

Many Filipino farmers have been forced to sell their livestock due to rising feed prices, and women have gone overseas to work, often as domestic servants in countries such as Dubai, leading more than 5% of the Philippines GDP to come from wages earned overseas. Younger generations are encouraged to move to the cities to find work, where they become consumers rather than producers, leaving fewer able labourers to carry out the heavy work of tending irrigation channels and managing terrace walls. In some areas, up to 15% of agricultural land has been abandoned (Watts 2008).

The president is currently campaigning against food hoarders, and has promised extra grants for rice seeds, as well as the distribution of subsidised 3kg bags. The agriculture ministry has also encouraged fast food restaurants to halve their portions of rice so that there is less waste by the middle class (Watts 2008).

“Such is the value of rice that some farmers in Thailand have started camping out in their fields with shotguns to prevent rice rustlers. Several big rice-producing nations, including Cambodia, Vietnam, Egypt, India, Pakistan and China have capped or halted exports to ensure food security for their own people. With so little rice traded internationally even during a good year, this makes the market volatile. The best Thai rice has tripled in price from \$334 (£170) to \$1,050 per tonne.” (Watts 2008)

Current predictions for global rice harvests are good, and some of these pressures are expected to ease, however the longer term challenge is to grow enough for an expanding population, and the Filipino president has recognised the importance of family planning. Watts (2008) notes that:

“The Catholic Church - a powerful force in the Philippines - is predicting rice instability for at least three more years. A solution will depend on improved technology, new hybrid strains, more efficient irrigation and measures to tackle the demographic drivers of demand.”

ANNEX THREE: UK FOOD PRICES

% change over 12 months
to 15 July 2008 (Office for
National Statistics 2008)

All food	12.2
Seasonal food	12.3
Food (excluding seasonal)	12.2
Bread	20.0
Cereals	17.5
Biscuits and Cakes	16.6
Beef	19.8
All lamb	11.6
Lamb (home killed)	18.3
Lamb (imported)	4.4
Pork	24.7
Bacon	15.9
Poultry	23.7
Other meat	11.1
All Fish	5.8
Fish (fresh)	----
Fish (processed)	11.5
Butter	36.5
Oil and fats	23.9
Cheese	18.0
Eggs	35.9
Fresh milk	19.4
Milk products	11.8
Tea	8.3
Coffee and other hot drinks	2.9
Soft drinks	2.0
Sugar and preserves	6.4
Sweets and chocolates	6.7
All Potatoes	16.5
Potatoes (unprocessed)	27.9
Potatoes (processed)	9.3
All Vegetables	9.9
Vegetables (fresh)	8.5
Vegetables (processed)	14.6
All Fruit	10.2
Fresh fruit	11.4
Processed fruit	3.5
Other foods	7.0

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