

# HUNGRY FOR JUSTICE

## FIGHTING STARVATION IN AN AGE OF PLENTY

POVERTY



Poverty is an outrage. It robs people  
of dignity, freedom and hope,  
of power over their own lives.

Christian Aid has a vision – an  
end to poverty – and we believe  
that vision can become a reality.  
We urge you to join us.

# CONTENTS

Introduction	<b>2</b>
Markets: the trader's song	<b>9</b>
Conflict: a hungry man is an angry man	<b>26</b>
Land: the new land grabs	<b>39</b>
Tax: stacking the odds against the poor	<b>54</b>
Climate change: the impact on food production	<b>62</b>
Population: the demography of food	<b>73</b>
Agriculture: sustainable solutions	<b>82</b>
Recommendations: formula for the future	<b>97</b>



# INTRODUCTION

We all have to eat. Some of us eat better than others and sometimes some of us don't get to eat very much at all.

Why do nearly a billion people go hungry every day?

Christian Aid/Chitra Gole



Bidekanne village, Andhra Pradesh. Samamma is the leader of a sangham or women's group. The Deccan Development Society has helped such women obtain and cultivate land that now feeds thousands

**Hunger. It is a scourge that has many causes.**

Some are natural: cyclones and tsunamis; volcanic eruptions and earthquakes; too much rain in some places, too little in others and sometimes a combination of both within one country in a matter of months.

Then there are the pressures on food supplies from myriad causes for which we alone are entirely responsible.

Wars and civil strife are major factors. The spectre of hunger is never far away when fighting disrupts harvests, rural populations are displaced and trade routes severed.

The imposition of misplaced economic theories on developing countries and their subsistence farmers by rich donor nations and the financial institutions they run – the World Bank and International Monetary Fund (IMF) – has also played a role.

Slashed agricultural budgets, reduced subsidies, and the lifting of price controls have all been hallmarks of a rush towards trade liberalisation that has too often failed to deliver benefits to those living in poverty.<sup>1</sup>

In tandem, huge tracts of land have been apportioned for purposes other than feeding the local population – particularly for the production of biofuels and other cash crops such as cotton and fresh flowers.

Demands that even smallholder farmers turn their attentions to such produce may be fine in times of plenty, but later, when the granary is bare and market food prices are beyond the farmer's reach, the promised bounty remains an unrealised dream.

Indirectly, the actions of some unscrupulous multinational corporations that remove massive amounts of money from developing countries in the form of unpaid taxes on hidden profits also contribute to rising food insecurity.

Developing countries struggle to get a fair price for their crops, while overpaying for items such as fertiliser and pesticide. This makes it harder for farmers to work their way out of poverty, while governments are deprived of the tax revenues they need.

As long as prices remain artificially skewed through tax manipulation, the global pattern of production will remain inefficient, leading to prices beyond the reach of the poor.

In recent years, global financial markets seem to have also played a part in helping put food beyond the reach of those living in poverty. A market system that has turned crops into financial commodities is now suspected of acting in an unforeseen and damaging way by forcing up prices.

As if all this was not enough to contend with,

matters could soon get a lot worse. The new middle classes in emerging economies show every sign of adopting the consumer habits of rich nations, which are already unsustainable, and stretching earth's resources beyond breaking point.

This trend is of particular concern as the world's population continues its predicted rise to 9 billion by the middle of the century.

**“ The global food system between now and 2050 will face enormous challenges, as great as any that it has confronted in the past**

And major shortages caused by the rapidly changing climate are soon expected to make themselves felt. The intensity of extreme weather events such as hurricanes will increase, and the frequency of floods and droughts will grow.

Higher temperatures will spread the blights that ruin crops and the diseases that kill people and livestock.

Less extreme but no less deadly will be the incremental temperature rises that steadily and surely will cut a swathe through many cultivated regions, draining the life from the soil and killing crops.

The food shortages taking place today are occurring at a time when the world *should* be able to feed itself. There is, after all, enough food to go round. It's just that all too frequently, it simply fails to get to the people that need it most – the hungry. They either can't afford it, or they can't access it.

As a result, about 3.5 million children under five in developing countries die from malnutrition-related causes every year.<sup>2</sup>

Filling empty bellies should be a global priority. It is, after all, first on the list of the United Nations Millennium Development Goals (MDGs) in the war against poverty. Goal 1 could not be more explicit: 'Eradicate extreme poverty and hunger.'<sup>3</sup> By 2015, the target is to halve the number of those afflicted.

Since the MDGs were drawn up 10 years ago, however, the situation has inexorably worsened. Just how acute the issue of food security has now become was highlighted earlier this year by Professor Sir John Beddington, Chief Scientific Adviser to the UK Government, and Head of the Government Office for Science, in his preface to the report, *The Future of Food and Farming*.<sup>4</sup>

# 9bn

Earth's projected population in 2050



Caroline Penn/Panos

## Helicopter delivering grain during a famine in Sudan

'We are at a unique moment in history as diverse factors converge to affect the demand for, and the production and distribution of, food over the next 20 to 40 years,' he warns. He concludes the report by predicting: 'The global food system between now and 2050 will face enormous challenges, as great as any that it has confronted in the past.'

Concentrating his mind, and those of the 400 scientists from 35 countries who worked on the report with him, is the fact that there will be an extra 2 billion mouths to feed by 2050.

A major sign that matters are deteriorating came with a massive spike in world food prices in 2008, when the cost of basics such as wheat, maize and rice rose by more than 100 per cent as agricultural commodities, along with the price of oil, rocketed.

That peak of 185 points, in an index of the real prices of 55 food commodities compiled by the United Nations' Food and Agriculture Organization (FAO), was then surpassed in February 2011 when it reached 208 points, falling back to 204 in April.<sup>5</sup>

Cereal prices, of crucial importance to the world's poor, hit a record 233 points in April this year, 5.5 points above 2008. In mid-April World Bank President Robert Zoellick expressed profound concern. 'This is the biggest threat to the world's poor, where we risk losing a generation. We are one shock away from a full blown crisis,' he told a Washington press conference.<sup>6</sup>

Such price volatility comes against the backdrop of a world still reeling from the effects of the 2007-2008 economic crisis, which hit developing countries hardest. Unemployment soared globally in the face of reduced investment, exports collapsed, and the level of crucial remittances being channelled back to poor countries from breadwinners abroad also fell.

Today, the results of the continued crisis, with its attendant food-price rises, can be seen in the domestic unrest that has spread across parts of Africa and the Middle East. The fact that people can no longer afford to feed themselves has played an integral part in a number of the anti-government protests that have taken place.

Exacerbating matters in recent months has been the impact of severe weather events, with monsoons causing devastating floods across Pakistan, and a particularly violent La Niña flooding large tracts of Australia's east coast. Floods have also hit Central and South America, while drought led Russia to ban all grain exports.

In *The Future of Food and Farming* – which was sponsored by the UK's Department for International Development (DFID) and the Department for Environment, Food and Rural Affairs (DEFRA) – Beddington spells out the challenges for the future.



# 85kg

Per capita consumption of meat  
in the UK, 2007

'The needs of a growing world population will need to be satisfied as critical resources such as water, energy and land become increasingly scarce,' he asserts.

'The food system must become sustainable, whilst adapting to climate change and substantially contributing to climate change mitigation. There is also a need to redouble efforts to address hunger, which continues to affect so many. Deciding how to balance the competing pressures and demands on the global food system is a major task facing policy makers.'

Beddington and his co-authors are not alone in their concern. In 2010 the FAO, the European Commission's Food Security Thematic Programme and the International Food Policy Research Institute (IFPRI) – a body supported by an alliance of 64 governments, foundations, and international and regional organisations – all produced major investigations into food security.

They each painted a similar picture of the challenges ahead. The future, broadly speaking, looks something like this.

Although there has been marked volatility in food prices over the past two years, most of the world's population still enjoys plentiful and affordable food.

Yet hunger remains widespread. Some 925 million people are chronically short of the major staffs of life, such as carbohydrates, fats and protein, and perhaps another billion are thought to suffer from 'hidden hunger'. These are whole populations, not starving, but short on necessary vitamins and minerals in their everyday diet, and so riven with preventable disease and a higher incidence of mental retardation at birth.

In contrast, one billion people are substantial over-consumers, their addiction to processed foods spawning a different kind of public health epidemic, made up of conditions such as type 2 diabetes and cardiovascular disease.

The world, unfortunately, has always consisted of the haves and the have-nots, with some feasting while others starve, but this time there is a difference: the system into which the world is locked at present is unsustainable.

Threats from interacting drivers of change will converge in the food system over the next 40 years, and their impact will be disastrously manifold.

Without change, our global food system will increasingly degrade the environment and compromise the world's capacity to produce food, as well as contribute to climate change and the destruction of biodiversity.

The expected population growth, rising from

# 3kg

Per capita consumption of meat  
in India, 2007

7 billion today to about 8 billion by 2030 and then to more than 9 billion by 2050, will be largely concentrated in Africa and southeast Asia, where food security is already a key issue.<sup>7</sup>

Just what provision is made for feeding this increased population will be determined by a range of other factors, including consumption patterns among the new middle classes in emerging economies, and the number of people moving to cities. Expanding cities in turn will need food, water and energy.

A rising Gross Domestic Product (GDP) is no protection in itself from the impact of the changes it provokes. Wealthier people are unlikely to be content for long with a diet of rice and vegetables – they will start wanting richer food stuffs, such as steak.

And that will have a major impact because livestock need feeding, and land set aside for that purpose will not be used for growing foodstuffs for people.

In rich countries, the per capita consumption of meat in 2007 (the latest figures available) was 88kg per person per year, although that average includes significant differences. In Luxembourg, for instance, per capita annual meat consumption was 136.73kg. In the United States it was 122.8kg, while the UK came in at 85.5kg and Norway 65.42kg.<sup>8</sup>

Now which end of the high-consumption spectrum the emerging BRIC economies (of Brazil, Russia, India and China) will gravitate towards is a cause for concern.

Meat consumption in Brazil in 2007 already stood at 80.5kg, Russia at 60.8kg, and China at 53.45kg. In India, where vegetarianism is a cultural and religious choice, as much as a reflection of poverty, the figure was 3.26kg.

One estimate is that the 9 billion people expected by 2050 will want to eat as much food as 13 billion at today's nutritional levels, which would require global food production to rise by 110 per cent over the next 40 years.<sup>9</sup>

But increasingly, control of huge areas of land, used hitherto for small-scale food production, or by pastoralists or indigenous peoples for food, is becoming subject to purchase and leasing agreements with sovereign wealth funds and businesses whose primary aim is profit.

Looking to the seas for an answer is pointless. The effects of over-fishing are already apparent globally – not least off the coast of the Horn of Africa, where the depredations of Taiwanese and Thai fish factory ships were among the factors that drove local fishermen to piracy (the beginnings of the hostage-taking and extortion now bedevilling that part of the world.)<sup>10</sup> Some believe that further expansion of aquaculture, or aquafarming, holds the key, with more fish farms and beds for crustaceans and molluscs. But in various

# 70%

Current level of global consumption  
of available fresh water for agriculture

parts of Asia, where rice paddies are being turned over to producing fresh water prawns for the tables of Europe and North America, the practice so pollutes the land that after a few seasons it is useless for both aquaculture and any future rice production.

The 2008 food-price spike has been seen by many as a wake-up call. The European Commission's *Food Security Thematic Programme* strategy update document of December 2010 notes: 'The increases in food prices in 2007-2008 had a direct detrimental effect on the food security of many people around the world. The poorest people were hit hardest by this crisis, not least because a larger share of their income is spent on food... Some developing countries have been hit harder than others, and it has often led to reduced income from remittances abroad, reduced investments, reduced exports, lower wages and higher unemployment.'<sup>11</sup>

Although global food prices have decreased since then, says the EC: 'They remain high and volatile in the domestic markets of many developing countries. Moreover, it is likely that, along with economic recovery and increasingly extreme weather patterns, prices will rise again in the coming years, possibly culminating in another food-price crisis.'

Professor Beddington, writing in a strategy paper after the last food-price spike, outlined the challenges ahead: 'The 2007/08 food price rises shocked many in the developed world from the belief that stable or declining food prices and assured supplies could be taken for granted.'

'In the developing world the impact of higher prices came on top of existing levels of food insecurity, making the impacts far more severe, particularly on the poorest and most vulnerable in society. Whilst the events of 2007/08 were driven mainly by short-term factors, they highlighted the challenge mankind faces to feed – equitably, sustainably and healthily – a global population approaching 9 billion by mid-century.'<sup>12</sup>

Yet we are already over-working the land we have under cultivation. Although global crop yields grew by 115 per cent between 1967 and 2007, the area of land in agricultural use increased by only 8 per cent, with the total currently standing at about 4,600 million hectares.<sup>13</sup>

Increasing yield is obviously good – provided the soil is not degraded in the process. The International Soil Reference and Information Centre estimated in 2009, however, that of the 11.5 billion hectares of vegetated land on earth, about 24 per cent has undergone human-induced soil degradation, in particular through erosion.<sup>14</sup>

Cash-crop plantations, the wholesale buying-up of land for non-food products, pressures to preserve natural habitats and ecosystems, and plans to designate large areas of land as carbon-retaining 'sinks' limit the scope for further agricultural expansion.

The Organisation for Economic Co-operation and Development (OECD) estimates, for example, that an additional 1.6 billion hectares in Africa could be used for agriculture. To start suddenly farming this land, however, would have major implications for greenhouse gas emissions as much of it is forest.

Urbanisation and desertification will add to pressure on land resources, as indeed will rising sea levels, leading to the salinification of major alluvial flood

**“ By 2025, water scarcity will result in an annual loss of 350 million tonnes of food – equivalent to losing today's entire global rice harvest**

International Food Policy Research Institute

plains such as in a manner already seen in Bangladesh.

Watering the land will bring with it a whole range of different problems, for rates of water extraction for irrigation are exceeding rates of replenishment. In China, water tables are falling by more than three metres a year, and in India it is the same.<sup>15</sup>

At current levels, agriculture consumes 70 per cent of total global clean water from rivers and aquifers available to humankind. However, total global water demand could rise by as much as 35-60 per cent between 2000 and 2025, and even double by 2050, owing to pressures from industry and our growing cities. The expected shortages of fresh water will make the risk of regional conflict over supplies ever more likely.<sup>16</sup>

The IFPRI predicts that by 2025, water scarcity will result in an annual loss of 350 million tonnes of food – equivalent to losing today's entire global rice harvest.<sup>17</sup>

The cost of agricultural inputs, meanwhile, fluctuate with the vagaries of global energy demand. Energy prices are already volatile, and major sectors of the food system are particularly vulnerable to higher energy costs. The production of nitrogen fertilisers is highly energy-intensive and saw a five-fold increase in fertiliser prices between 2005 and 2008 as a result of the soaring oil price during this period. The cost of fuel also impacts on shipping costs.<sup>18</sup>



**“ Food production and the food system must assume a much higher priority in political agendas across the world. To address the unprecedented challenges that lie ahead the food system needs to change more radically in the coming decades than ever before**

Professor Sir John Beddington, Chief Scientific Adviser to the UK Government, *The Future of Food and Farming*, 2011

As a reaction to the worsening global situation, food security has gained a central place on the international development community's agenda. At UN level, in 2008 the Secretary-General established a High-Level Task Force on the Global Food Security Crisis (UN HLTf) composed of heads of the UN specialised agencies and the Bretton Woods institutions of the World Bank and IMF. The UN HLTf prepared a *Comprehensive Framework for Action*, outlining proposed UN actions for the short, medium and long term, aimed at alleviating shortages.<sup>19</sup>

The G8 Summit in Aquila in 2009 agreed on a common comprehensive agenda – the Aquila Food Security Initiative (AFSI) – which included a US\$22bn commitment to tackle food insecurity, based on country-led, strategically coordinated processes.<sup>20</sup> Much of the money, however, has not yet been forthcoming.

During the 2009 World Summit on Food Security in Rome, world leaders decided to concentrate all efforts through the evolving Global Partnership for Agriculture, Food Security and Nutrition (GPAFSN).<sup>21</sup> The UN's Committee on World Food Security (CFS), whose reform was launched in October 2009, will be a central component in global governance on food security.<sup>22</sup>

The question is: will the new initiatives go far enough, particularly in terms of promoting sustainable solutions? Beddington's 2011 report concludes: 'Food production and the food system must assume a much higher priority in political agendas across the world. To address the unprecedented challenges that lie ahead the food system needs to change more radically in the coming decades than ever before.'

'There is growing consensus that global poverty is unacceptable and has to be ended. However, very difficult decisions lie ahead and bold actions by politicians, business leaders, researchers and other key decision makers will be required, as well as engagement and support by individual citizens everywhere, to achieve the sustainable and equitable food system that the world so desperately needs.'<sup>23</sup>

The report that follows examines the causes of food insecurity, presenting new evidence indicating that a major reason for recent food price hikes could be the activity of long-term investors in the commodity index market.

As we show in the chapter on markets (see p9), investment in this area has boomed in recent years following deregulation in the US of trading in commodity index funds, leading the head of the Financial Stability Board, Mario Draghi, to warn in April that the situation had all the hallmarks of a bubble waiting to burst.<sup>24</sup>

And while a bursting bubble might ease the immediate damage caused by high prices, it would also bring its own costs, particularly in terms of the impact on producers and future production, as well as leaving intact a distorted market, as we explain in the next chapter.

The report also highlights the contribution that small farmers, whose interests are often ignored by their governments, could make to food security if they only received the backing and support they need.

We show instances of such farmers coping in the face of adversity, benefiting from advice and assistance provided by Christian Aid partner organisations.

And we identify the sustainable farming practices that seem to point to a solution to what is perhaps the greatest challenge facing humankind today, food security, giving examples of how these can be scaled up to present a viable future.

# ENDNOTES

- 1 These economic measures, known as Structural Adjustment Programmes, were the subject of a major Christian Aid campaign, 'Who runs the world?', launched in 1994.
- 2 'Food security fears rise along with prices', World Bank, 1 April 2011, [web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:22876592~pagePK:34370~piPK:34424~theSitePK:4607,00.html](http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:22876592~pagePK:34370~piPK:34424~theSitePK:4607,00.html) (Based on: 'Maternal and child undernutrition: global and regional exposures and health consequences', *Lancet*, 371 (9608), pp243-60, Prof Robert E Black MD, Prof Lindsay H Allen PhD, Prof Zulfiqar A Bhutta MD, Prof Laura E Caulfield PhD, Mercedes de Onis MD, Majid Ezzati PhD, Colin Mathers PhD, Prof Juan Rivera PhD, for the Maternal and Child Undernutrition Study Group, [thelancet.com/journals/lancet/article/PIIS0140-6736\(07\)61690-0/fulltext?\\_eventId=login](http://thelancet.com/journals/lancet/article/PIIS0140-6736(07)61690-0/fulltext?_eventId=login))
- 3 End Poverty 2015, Millennium Development Goals, United Nations. [un.org/millenniumgoals/poverty.shtml](http://un.org/millenniumgoals/poverty.shtml)
- 4 *The Future of Food and Farming*, Final Project Report, Foresight, The Government Office for Science, London, 2011, [bis.gov.uk/assets/bispartners/foresight/docs/food-and-farming/11-546-future-of-food-and-farming-report.pdf](http://bis.gov.uk/assets/bispartners/foresight/docs/food-and-farming/11-546-future-of-food-and-farming-report.pdf)
- 5 FAO Food Price Index, release date 5 May 2011, [www.fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/](http://www.fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/)
- 6 World Bank development committee press conference transcript, 16 April 2011 <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:22891602~pagePK:34370~piPK:34424~theSitePK:4607,00.html>
- 7 Ibid.
- 8 OECD-FAO, 'Agricultural outlook/per capita consumption 2007', [oecd-ilibrary.org/agriculture-and-food/data/oecd-fao-agricultural-outlook/per-capita-consumption-2007\\_data-00215-en?isPartOf=/content/datacollection/agr-data-en](http://oecd-ilibrary.org/agriculture-and-food/data/oecd-fao-agricultural-outlook/per-capita-consumption-2007_data-00215-en?isPartOf=/content/datacollection/agr-data-en)
- 9 Professor Julian Cribb, *The Coming Famine*, University of California Press, 2010, [ucpress.edu/book.php?isbn=9780520271234](http://ucpress.edu/book.php?isbn=9780520271234)
- 10 'Africa looks to fight piracy, illegal fishing and waste', [illegal-fishing.info](http://illegal-fishing.info), 8 April 2010, [illegal-fishing.info/item\\_single.php?item=news&item\\_id=4658&approach\\_id=12](http://illegal-fishing.info/item_single.php?item=news&item_id=4658&approach_id=12)
- 11 *Food Security Thematic Programme*, European Commission, 2010, [ec.europa.eu/europeaid/how/finance/dci/food\\_en.htm](http://ec.europa.eu/europeaid/how/finance/dci/food_en.htm)
- 12 *UK Cross-Government Food Research and Innovation Strategy*, The Government Office for Science, London, 2010, [bis.gov.uk/assets/bispartners/goscience/docs/c/cross-government-food-research-strategy](http://bis.gov.uk/assets/bispartners/goscience/docs/c/cross-government-food-research-strategy)
- 13 See note 4.
- 14 See note 4.
- 15 See note 9.
- 16 See note 9.
- 17 International Food Policy Research Institute, *World Water and Food to 2025*, IFPRI, 2002, [ifpri.org/publication/world-water-and-food-2025](http://ifpri.org/publication/world-water-and-food-2025)
- 18 See note 4.
- 19 *Comprehensive Framework for Action*, High-Level Task Force on the Global Food Security Crisis, 2008, [un.org/issues/food/taskforce/Documentation/CFA%20Web.pdf](http://un.org/issues/food/taskforce/Documentation/CFA%20Web.pdf)
- 20 'Role of the Investment Centre in the Aquila Food Security Initiative', FAO Investment Centre, [fao.org/tc/tci/othercollaboration/the-aquila-food-security-initiative/en](http://fao.org/tc/tci/othercollaboration/the-aquila-food-security-initiative/en)
- 21 *Declaration of the World Summit on Food Security*, 2009, World Summit on Food Security, Rome, 16-18 November 2009, [fao.org/fileadmin/templates/wsfs/Summit/Docs/Final\\_Declaration/WSFS09\\_Declaration.pdf](http://fao.org/fileadmin/templates/wsfs/Summit/Docs/Final_Declaration/WSFS09_Declaration.pdf)
- 22 Committee on World Food Security, [fao.org/cfs/en/](http://fao.org/cfs/en/)
- 23 See note 4.
- 24 'IMF raises alarm over exchange traded commodities funds', *The Guardian*, 18 April 2011, [guardian.co.uk/business/2011/apr/17/imf-commodities-funds-sub-prime?INTCMP=SRCH](http://guardian.co.uk/business/2011/apr/17/imf-commodities-funds-sub-prime?INTCMP=SRCH)

# MARKETS THE TRADER'S SONG

*By the way, what is rice?  
Don't ask me what rice is  
Don't ask advice  
I've no idea what rice is  
All I know is price*

Bertolt Brecht<sup>1</sup>



The frenzy of the trading floor – commodity brokers are now accused of pushing up food prices, to the detriment of the poor



**“ Food has now become a financial commodity, to be traded and bet against just like any other, such as copper or oil**

Today's spikes in global food prices, like those of 2008, have many causes, but underpinning them is a disturbing fact. Food has now become a financial commodity, to be traded and bet against just like any other, such as copper or oil.

This has led to growing unease that the manner in which global markets are run might actually be making a significant contribution to the price rises which in turn cause hunger.

The evidence that exists is not conclusive, for these are early days – research into the global pull of today's economic forces on the price of food is at a nascent stage.

But the picture that has so far emerged highlights one salient fact. If the markets do indeed share some responsibility for price hikes, then the bad guys are not the usual suspects – the hedge fund managers and 'cowboy speculators'.

Instead, it may be that some of the more prudent financial actors – institutional investors including pension funds – are responsible for helping drive up food prices globally.

These investors are not part of some grand conspiracy of greed. There is no malice aforethought in their actions.

Rather, it is the manner in which global markets have changed that may be to blame for reversing the inroads against hunger that have been made in the

past two decades (see Figure I below).

In this globalised world, it is clear that market regulation decisions must take full account of the potential human implications of change. It is crucial that policy makers arrive at a better understanding of the linkages explored here between futures trading, investment in commodity indices and food-price rises resulting in hunger, and enable regulators to act accordingly.

### Scale and impact of food-price spikes

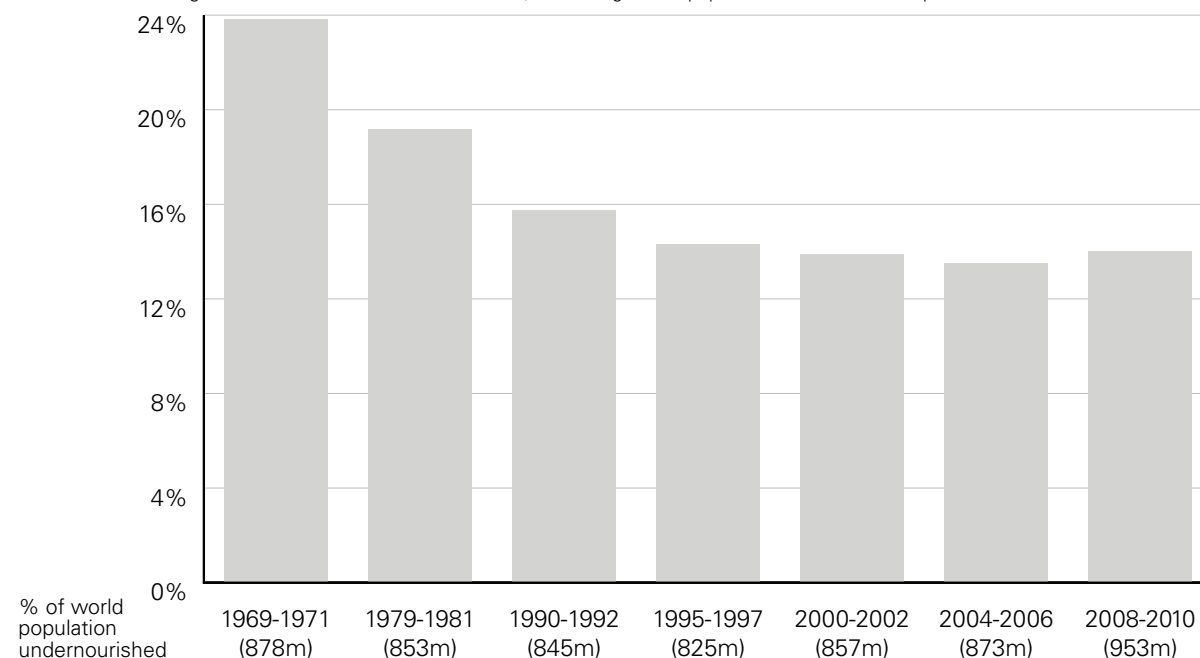
Food prices are volatile over time, as different factors exert powerful influences on production and consumption. Figure II (on the next page) highlights three distinct periods of food-price movement over recent decades, and associated progress – or lack of it – in combating malnourishment around the world.

First, from the mid-1970s to the mid-1990s, there was a period of relatively rapid decline in average international food prices (shown by the red line in Figure II). This period was characterised by consistent and significant reductions in the proportion of the world population suffering from malnutrition (even as that population grew). This reduction, shown in the first three bars in Figure II, was never less than 0.3 per cent per year on average.

This was followed by, second, a period of stagnation in prices that lasted into the early part

**Figure I** World undernourishment levels 1969-2010

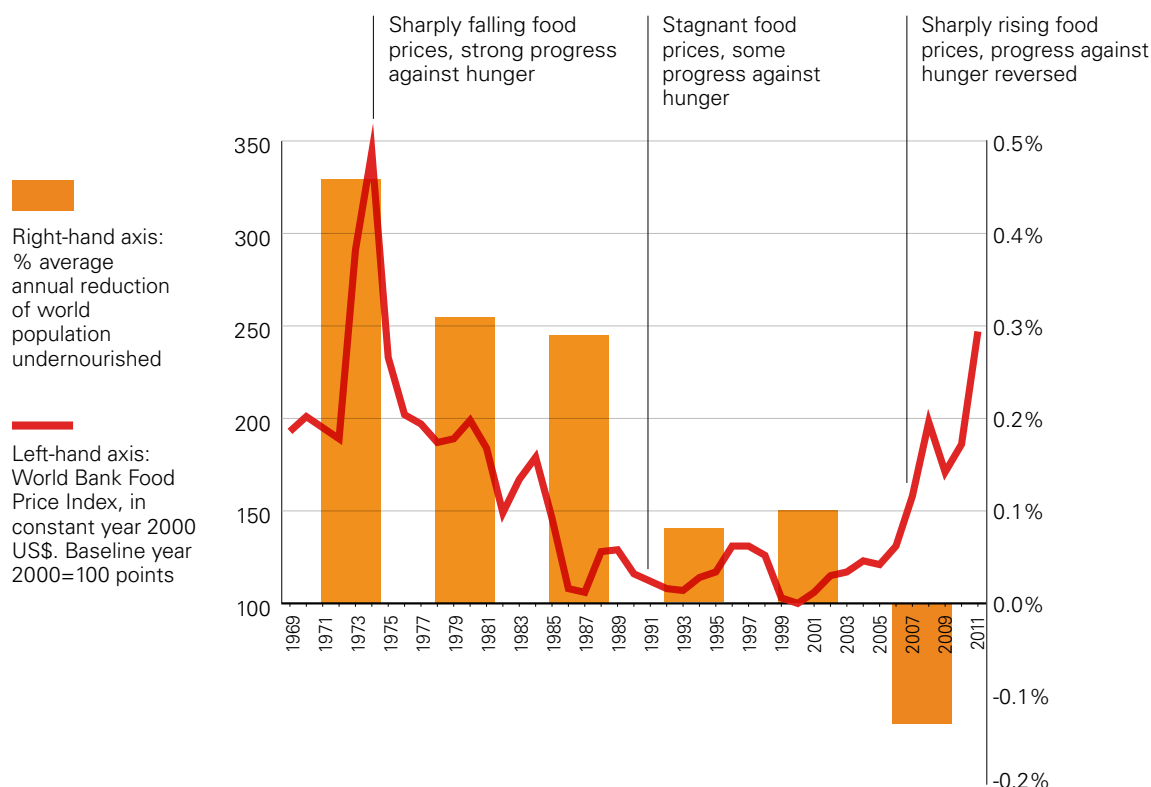
Calculated from average number of undernourished (FAO data), and average world population (data from UN Dept of Economic and Social Affairs)





**Figure II** Food prices and the scale of human hunger since the 1970s

Calculated from average number of undernourished (FAO data), and average world population (data from UN Dept of Economic and Social Affairs) plus World Bank Food Price Index



of this millennium. This was characterised by relatively little progress – but progress nonetheless – in reducing the proportion of the world population in hunger. This reduction, shown in the fourth and fifth bars, was around 0.1 per cent each year on average.

Finally, the most recent period has seen a combination of explosive growth in food prices, and the first sustained increase (shown in the final bar) for many years in the proportion of the population suffering from malnutrition.

As maize prices nearly tripled, rice soared by 170 per cent and wheat climbed by 127 per cent, food prices between January 2005 and June 2008 reached unprecedented levels, rising by an average of 83 per cent.<sup>2</sup>

As a result, the numbers living in extreme poverty increased by up to 150 million. The 40 million driven into actual hunger and deprivation took the global number of those so afflicted to nearly one billion (963 million).<sup>3</sup>

As usual, the brunt was borne by people in what the FAO classifies as the Low Income Food Deficit Countries (LIFDCs), the poorest and least developed nations on earth, and rioting broke out in more than 30 countries. Even when times are good, the poor in such places must spend up to four-fifths of their income on food.<sup>4</sup>

Today, less than three years later, a similar picture is emerging. In February 2011, food prices stood 23 points above the record levels reached in June 2008 (208.3 points compared to 184.7 points on an FAO index of real prices that take inflation into account).<sup>5</sup> According to the World Bank, a further 44 million people since mid-2010 had been forced into extreme poverty, surviving on the equivalent of just

## “ Food security is now a global security issue

World Bank President Robert Zoellick

US\$1.25 per day.<sup>6</sup>

Wheat prices were among the fastest moving, doubling between June 2010 and January 2011 as droughts hit Russia and China, and Australia suffered severe flooding.<sup>7</sup> Maize, sugars and edible oil prices were also hard hit.

The increases caused shortages in the economically weakest nations, undermined public budgets in countries relying heavily on imported food with little ability to pay more, and prompted others to stockpile grain and restrict exports.

And once again, there was political turmoil, this time of an altogether different magnitude than that of 2008.

As governments fell in Egypt and Tunisia and street protests challenged a number of other regimes, World Bank President Robert Zoellick warned prices were reaching ‘dangerous levels’.<sup>8</sup>

‘Food security is now a global security issue,’ he asserted, urging G20 leaders to make the issue their top priority.<sup>9</sup>

‘While not the primary cause for the political instability we see today in the Middle East, rising prices have nevertheless been an aggravating factor that could become more serious,’ he said.

A recent detailed consumer survey of major emerging economies found that citizens of Brazil and China spend 15-20 per cent of their income on food; those of India and Saudi Arabia 20-25 per cent; and those of Indonesia and Russia 25-35 per cent; but

## 30

## The number of countries where rioting broke out as a result of unprecedented food price rises, 2005-2008

citizens of Egypt, immediately before the overthrow of President Mubarak, were spending in excess of 40 per cent of their income on food alone.<sup>10</sup>

A new IMF working paper, meanwhile, based on data from 120 countries between 1970 and 2007, concludes that in low-income countries, food-price rises significantly increase political unrest.

'In Low Income Countries increases in the international food prices lead to a significant deterioration of democratic institutions and a significant increase in the incidence of anti-government demonstrations, riots, and civil conflict,' the report says.

'The world's poorest countries that are arguably the least responsible for changes in the international food prices are strongest hit... Our empirical results are broadly consistent with the often made claim by policy makers and the press that food price increases put at stake the socio-economic and political stability of the world's poorest countries.'<sup>11</sup>

Clearly, other factors such as poor governance and state oppression have roles to play, but just weeks earlier, the UK government-sponsored report *The Future of Food and Farming* by Sir John Beddington had also emphasised the part food-price rises can play in provoking unrest. Price volatility 'risked political and social instability', it says.

'Food production and the food system must assume a much higher priority in political agendas across the world.'<sup>12</sup>

When prices rise, it explains: 'The main problems are likely to occur among the urban poor who cannot grow their own food or do not have access to "wild food". Failure to address these problems may lead to social strife and political instability, as seen in 2008.'<sup>13</sup>

In the longer term, says Beddington: 'To address the unprecedented challenges that lie ahead the food system needs to change more radically in the coming decades than ever before, including during the Industrial and Green Revolutions.'<sup>14</sup>

### Speculating about speculators

One response to growing concern at price volatility has been to blame speculators. This has prompted strident denunciations of the way global financial markets operate, sometimes from figures in authority. In January 2011, French President Nicolas Sarkozy toured the World Economic Forum in Davos, drumming up support for a plan to curb speculation in commodities.<sup>15</sup>

And Michel Barnier, the European Commissioner for Internal Market and Services, pledged that Brussels would impose limits on such speculation.

'I find speculation in agricultural commodities

where it exists to be scandalous. Between 2002 and 2008, the number of financial contracts for derivatives in commodities has tripled. We are no longer talking about foodstuffs. Agricultural products are turning into financial assets,' he said.<sup>16</sup>

One solution, said Barnier, was for the EU to bolster powers of regulators to intervene when speculative positions in derivatives – financial instruments whose values are tied to a commodity – send grain or energy prices spiralling up. And indeed the EU now plans to push traders to disclose their positions and it is considering imposing 'position limits' to stop mega-trades that could upset markets. The US and UK meanwhile are leading a taskforce to supervise over-the-counter trading on the commodity indices.

Establishing ways to limit speculation and panic buying, as well as setting guidelines for the use of import and export controls, are also under active discussion by G20 finance ministers. Zoellick at the World Bank has floated similar ideas, saying that the focus of major nations should be 'not to prosecute or block markets, but to use them better'.<sup>17</sup>

In this context, there has occurred a number of high-profile incidents featuring hedge funds, the managers of which are the standard villains in many an analysis of the present financial crisis.

The one most cited, perhaps, was the manoeuvre by a London hedge fund to take delivery of about seven per cent of annual worldwide cocoa production on one day in July 2010, pushing the price to a 33-year high. 'Hedge funds accused of gambling with lives of the poorest as food prices soar,' read one newspaper headline.<sup>18</sup>

The hedge funds, as might be expected, largely tell a different story. Aside from some high-profile events of apparent manipulation, they argue that they generally make money moving against the market, buying when it is selling, and vice versa. By following this type of strategy across multiple markets, they aim generally to buy low and sell high, and hence make their profit from the margin.

'The asset is irrelevant – wheat, copper – it's just "it", a number on a screen,' said one hedge fund manager contacted by Christian Aid. 'Sometimes we only "hold" for a matter of hours, and we are so focused on price, that the instant "it" starts getting unreal [*as it rises*], we sell.'

On this reading, the hedge funds actually act as a damper on upwardly spiralling markets. When they sell, there is more of 'it' on the market, and as any student of basic economics knows, that drives the price down. Similarly, hedge funds buying in when the

market is on the way down will limit price falls.

As long ago as 2006 *The Wall Street Journal* was asking: 'So if hedge funds are playing a smaller role in the market than many assume, who is playing a bigger part in the surge in many commodity prices?'<sup>19</sup>

The answer, it said, was: 'Institutional investors, such as endowments and pension plans.' They were continuing 'to increase their allocation to commodities, helping to push up prices. These investors are seen as more long-term orientated than hedge funds...'

Another of those early on to accuse institutional investors of being responsible for distorting food prices came from within the hedge fund industry itself, which meant the remarks were not necessarily given the full weight they deserved.

Michael W Masters of hedge fund Masters Capital Management told a US Congressional committee in June 2008: 'You have asked the question "Are institutional investors contributing to food and energy price inflation?" And my unequivocal answer is "yes"... Institutional investors are one of, if not the primary, factors affecting commodities prices today.'<sup>20</sup>

**Chicago was the world's first futures and options exchange, but examples of futures trading appear as far back as historical records go**

### A brief overview of 'futures'

To understand the arguments that Masters and many others have now made, it is worth looking back to understand how the 'futures' markets that are at the centre of the debate on food prices developed.

The first such market emerged during the 17th century in Dojima, in Japan, with rice being the commodity involved.<sup>21</sup> More recently, the Chicago Board of Trade was established in 1848 to bring order to the Midwest's chaotic grain market. The Bombay Cotton Trade Association Ltd opened in 1875, Argentina's Bolsa de Cereales in 1907 and so on.

Although Chicago was the world's first futures and options exchange, examples of futures trading appear as far back as historical records go, and in many traditions: from market operations described in the ancient Indian text Kautilya's *Arthashastra*, to those that appear in a story in Aristotle's *Politics* – both texts that are thought to date to the fourth century BC.<sup>22</sup>

The latter relates the tale of Thales the Milesian,

a professional philosopher who was tired of being mocked for his poverty. He decided to use his ability to read the weather, and bet on his knowledge by booking up all the olive oil presses in his region way in advance of the harvest.

The owners of the oil presses were glad to sell him those rights in exchange for cash upfront. When the harvest, as he predicted, turned out to be bumper, Thales resold the rights to use the presses and became a very rich man.<sup>23</sup>

Weather variables, and their impact on crops, led to the prevalence of the practice. Imagine that you are a farmer, producing a single type of food, say wheat, in a particular area of one country.

Wheat is a suitable crop for the area, but you realise that if you only grow one thing then you're exposed to a high risk if things go wrong. One partial answer would be to grow some other food types too, but there is nothing as well suited to your area; and because of the variability of weather conditions you would still be exposed to a high risk if you grew different crops all in one place.

Had you the wherewithal, you could reduce your risk by growing wheat in a number of different areas, or even in different countries. But then the realisation dawns that if you could simply find others elsewhere in a similar position to yourself, you could arrange contracts between you so that everyone faced a lower risk.

You could agree, for example, that if the crop in one area failed then the other producers would make some payment to the farmer from that area (which would be relatively easy, since the other producers would receive a higher price for their wheat due to the lower total crop available).

If all crops were successful, the wheat market would be full and you would all sell your crops (at a somewhat lower price). The main benefit of the arrangement would be that, come what may, none of you would receive nothing – and so you would each have some security.

The arrangement could become somewhat more effective if it included the 'other side' of your market: the people who rely on wheat to produce other products that they then sell to others – let's call them bakers.

The bakers worry each year that they won't be able to buy enough wheat to make a living by selling bread, so they have a similar problem to the farmers.

For the bakers' security, they would like to be sure of being able to buy a minimum amount of wheat, regardless of how successful the harvest is. By bringing farmers and bakers together to agree contracts for the harvest to come, a market in 'agricultural futures' emerges from the desire of

**“ While the key structural features and trends that affect wheat production and demand remain important, the introduction of new influences [big financial players] reduces their role in determining prices**

all those involved to have greater security. This does not mean, of course, that futures markets have been purely beneficial, and regulating against manipulation has been an ongoing requirement to limit abuse and maintain benefits. Nonetheless, speculation involving agriculture has long been a valuable source of funds for the farmer.

Selling ‘futures’ in crops or livestock based on the price that the commodity in question is expected to reach in the future provides the regular cash flow needed to keep farms going.

Over time, such contracts came to be standardised to allow them to be traded on a market, rather than requiring a different, specific agreement between buyer and seller on each occasion.

Now back to you, our farmer. Although the futures market is not perfect, it does allow your family some security, and together you are able to save and invest a little more than before in most years.

In addition, the market allows you to have some insurance against the risk of bad things happening in the wheat harvest, and promotes the process of price discovery, in which a reasonable price is set through basic supply-and-demand factors related to the market, thereby supporting better investment decisions.

For example, if people in the market have reason to believe that the demand for wheat is growing, prices for next year’s harvest should rise. That will give you an incentive to plant for a bigger crop, but can also provide you with some money upfront to pay the costs of doing so. In this way, price discovery can improve the outcomes for all – you are able to grow and sell more wheat, and the larger demand for wheat will be satisfied.

Imagine now that there is growing interest in your futures market. Some big financial players, who are used to taking decisions with much bigger amounts of money than the entire wheat market is worth, suddenly start to take notice of it.

Their interest stems from the fact that their researchers have discovered that prices in your market have tended, over time, to move quite independently of the major macroeconomic markets in which they normally operate (such as those of currencies and company shares).

This means that by including your market in their portfolio of investments, they can obtain a better risk-return ratio overall; in much the same way, in fact, that setting up the market originally improved *your* set of possible outcomes.

The interest of these big players, however, is not in price discovery or indeed anything else to do with wheat, but in having financial positions that will not



**Rice is now a financial commodity on world markets**

necessarily perform badly when the markets of their major investments do (because many of the latter tend to be influenced similarly by major events, such as a house-price crash in the United States).

But the effect on your market is something like this: because these big players are so large, financially, in comparison to the market, any decision they make will move prices. The big players make decisions about how much to invest in your market according to events (and expectations of events) in the multiple, major markets in which they operate.

As a result, the price of wheat futures almost inevitably starts to respond to the broader macroeconomic picture. While the ‘fundamentals’ (the key structural features and trends that affect wheat production and demand) remain important, the introduction of new influences reduces their role in determining prices. The extent to which the market can therefore be used to provide security may be weakened by this.

To understand better the evidence for these effects in the real world, and the potential impact on food prices and hunger, we need to examine the actual role of institutional investors and a financial instrument of relatively recent creation – the commodity index fund.



**Figure III** Value of a commodity index since the 1950s<sup>24</sup>

### The role of institutional investors and indices

While trading in futures with regard to specific commodities has been around for centuries, 20 years ago things took a new turn.

That was when investment bankers Goldman Sachs launched in 1991 the world's leading commodity index open to direct investment: the Goldman Sachs Commodity Index, or GSCI.<sup>25</sup>

Having selected 18 commodities including cattle, coffee, cocoa, corn, pigs and wheat, as well as non-agricultural commodities such as oil and copper, they took the market value of each and gave it an investment value arrived at by a mathematical formula.

The index was then opened to trading, with the invitation to invest in this 'bundle' of commodities, rather than commodities individually. The hope was that those commodities that went down on the open market would be counterbalanced by those going up, and that overall, the value of the bundle as a whole would continue to rise. So far, it has not disappointed.

Goldman Sachs advertised the index as an 'ideal mechanism' for hedging against adverse movements in other financial markets such as shares or currencies.

Hedging involves investing into one market in an attempt to offset exposure to price changes or fluctuations in other markets where you have also invested, with the aim of minimising your overall risk. It is normally done by buying a 'derivative' – a piece of paper representing the value of an asset such as wheat or oil. In the case of commodities indices, investors receive a piece of paper representing the value of the index.

In addition to this 'diversification' strategy, the second key reason for institutional investors to consider such commodity indices is the 'China bet'. This is the view that investors can benefit from a long-term upward trend in food prices, which is thought likely to result from the consumption patterns of the emergence of a growing middle class in countries such as China and India.

Since the GSCI was launched, other indices have appeared such as the Dow Jones-AIG Index and the Rogers International Commodities Index.

Over time, the inclusion of agriculture in these indices took on a particular appeal. Price fluctuations meant that, by themselves, oil and metals were no longer perceived as safe havens, while the one-time darlings of the investment world, the dotcoms, went bust at the end of the 1990s. Agriculture relates to food though, and we all need to eat all of the time.

However, the setting up of a commodity index meant that the connection between its investors and a specific commodity was broken, or at least weakened. In addition, it has become apparent that given the huge sums of money people are prepared to invest, the existence of the index itself can influence the open-market value of the commodities it features.

Following the deregulation in the US of trading on such commodity indices under the US Commodity Futures Modernization Act of 2000, they began to attract an influx of non-traditional investors, such as pension funds and managed investment funds.

These big players were not interested per se in trading in wheat or pork bellies. What they wanted was a safe place for their money to grow at a time when the old favourites were no longer delivering. The commodity indices offered a good long-term prospect.

Effectively, investors were moving out of shares in listed companies and taking macroeconomic positions. Instead of betting on how a specific business would perform, they were betting on how the price of the commodities would perform globally, in the face of – for example – growing demand from emerging economies such as China.

The sums of money that started flooding into these new indices were significant. The US regulator of commodity trading, the Commodity Futures Trading Commission (CFTC), reported that the total value of the institutional investors' plunge increased from an estimated US\$15bn in 2003 to at least US\$317bn in mid-2008.<sup>26</sup>

# US\$26.5tn

Combined value of the world's 13 largest pension markets – by comparison, the combined GDP of the US and China, according to the IMF, is about US\$24.6tn

And a study by Lehman Brothers before it went bankrupt revealed that the volume of index-fund speculation increased by 1,900 per cent between 2003 and March 2008.<sup>27</sup>

This reflects the scale of the involvement of institutional investors. Take pension funds: according to the most recent survey by risk-management insurers Towers Watson, pension-fund deficits, which have plagued final-salary occupational schemes around the world, narrowed last year as assets in the 13 largest pension markets hit a record high of US\$26.5tn.<sup>28</sup>

This figure dwarfs the US\$3.5tn amassed by sovereign wealth funds around the world, and the US\$2.5tn of foreign debt owned by the Chinese government. And it has to have somewhere to go.<sup>29</sup>

For although global pension funds might be in overall deficit – that is, they are not currently holding enough money to pay out all they are contracted to at some future date – the money they have now has to be invested and grown to help go towards closing that deficit. Since 2000, the year the commodity indices really took off, global pension fund assets have grown 66 per cent.<sup>30</sup>

Figure III (p15) shows the evolution over time of values of the Continuous Commodity Index, which has been constructed back to the 1950s (although not then open to investors) to show a broader sweep of history.

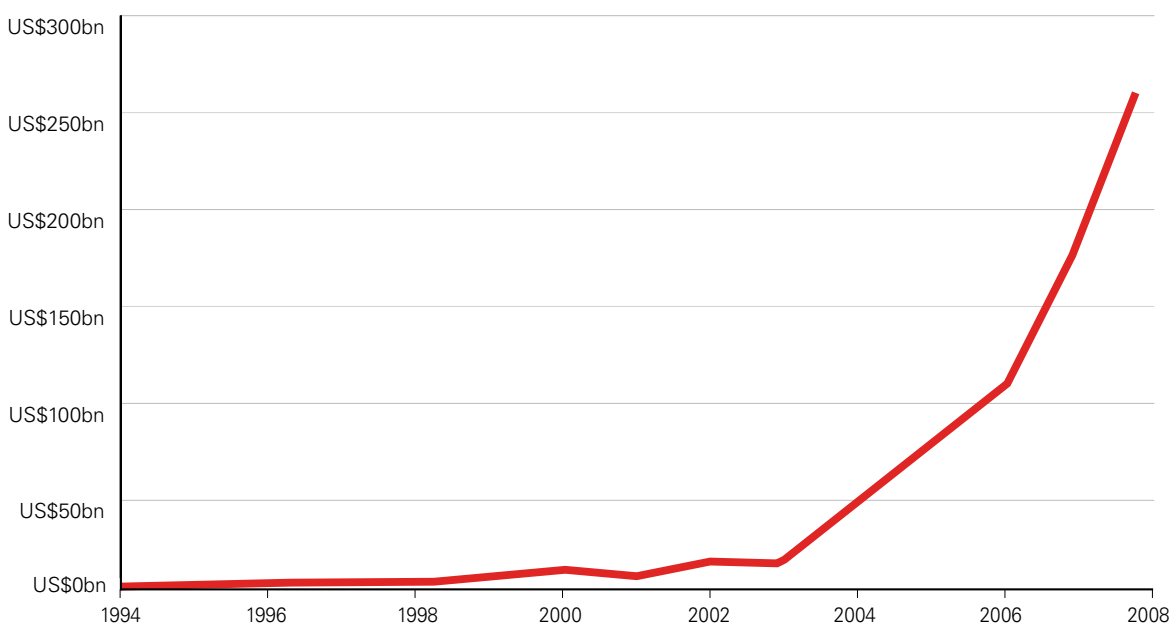
As the figure shows, there is little variation in the early period. Following the oil-price shocks there are very sharp rises in the early and late 1970s, and then a downward trend through to the end of the century. But from 2002 to 2008, the index triples in value (as it had done, albeit over a longer period, during the 1970s). After a sharp fall with the onset of the crisis during the second half of 2008 – as explained in the Christian Aid report *The Morning After the Night Before*, when credit suddenly dried up – the index has since resumed its steep climb.

The period since the liberalisation of the US Commodity Futures Modernization Act of 2000 appears to have been marked by a quite different and more pronounced trajectory. It would be startling indeed if the volume of financial flows to commodity markets had not had real impact; and yet the extent of this remains in dispute. Below we explore some of the key claims that have been made.

## Index investment and food prices

Figure IV (below) uses data from Michael Masters to show the dramatic growth in commodity index investment. By 2009, the US Senate Permanent Subcommittee on Investigations had concluded that the scale of the index investment flow was distorting prices of food commodities, and it specified wheat as an example.<sup>31</sup>

**Figure IV** Development of commodity index-fund investment<sup>32</sup>



# 1,900%

The increase in the volume of index-fund speculation from 2003-2008

One view of what was happening is given by Professor Christopher Gilbert, the Academic Director of the Doctoral Programme in Economics and Management at the University of Trento, Italy: 'It was a financialisation of the market. Institutions were investing in commodities to take a position in projected growth, mainly in China. That is a macro-economic investment intruding itself into a commodity market.'<sup>33</sup>

Gilbert, who has advised both the UK government and FAO on food-price volatility, points out that it is important to note the difference between investment in commodities futures, on the one hand, and investment in commodity index funds on the other. Commodities futures are standard contracts, are traded on exchanges, and are regulated in the US by CFTC and in the UK by the Financial Services Authority (FSA).

Investment in a commodities index fund, however, is mostly done 'over the counter', or OTC, where contracts are not standardised and trades are largely unregulated. Institutional investors playing the indices, such as pension funds, will typically enter into agreements with wealth-fund managers or investment banks to make their investment for them in return for an annual management fee.

At this point, Gilbert says there are two important factors to bear in mind: investment in an index is an investment in a 'basket' of commodity futures. It's

not just agricultural commodities; they make up just 12.2 per cent of the value of the GSCI, for instance, with oil and copper among other commodities in there.

In addition, the fund manager doing the investing for the institution will also have taken a 'long' position, not in the index, but in 'futures' of each of the specific commodities it includes, to offset against the risk of the index falling.

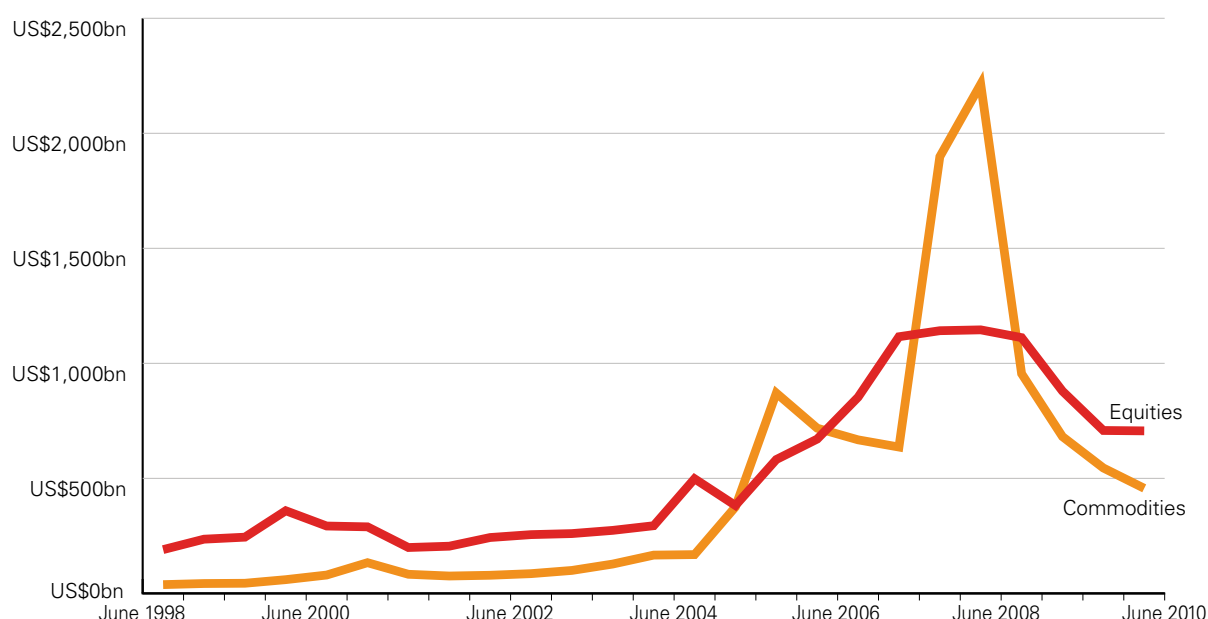
A 'long' position is a standard investment, which is to say that if the value of the commodity rises then an investor with a long position will benefit – just as if you owned a share in a company, you are said to be 'long' in that company.

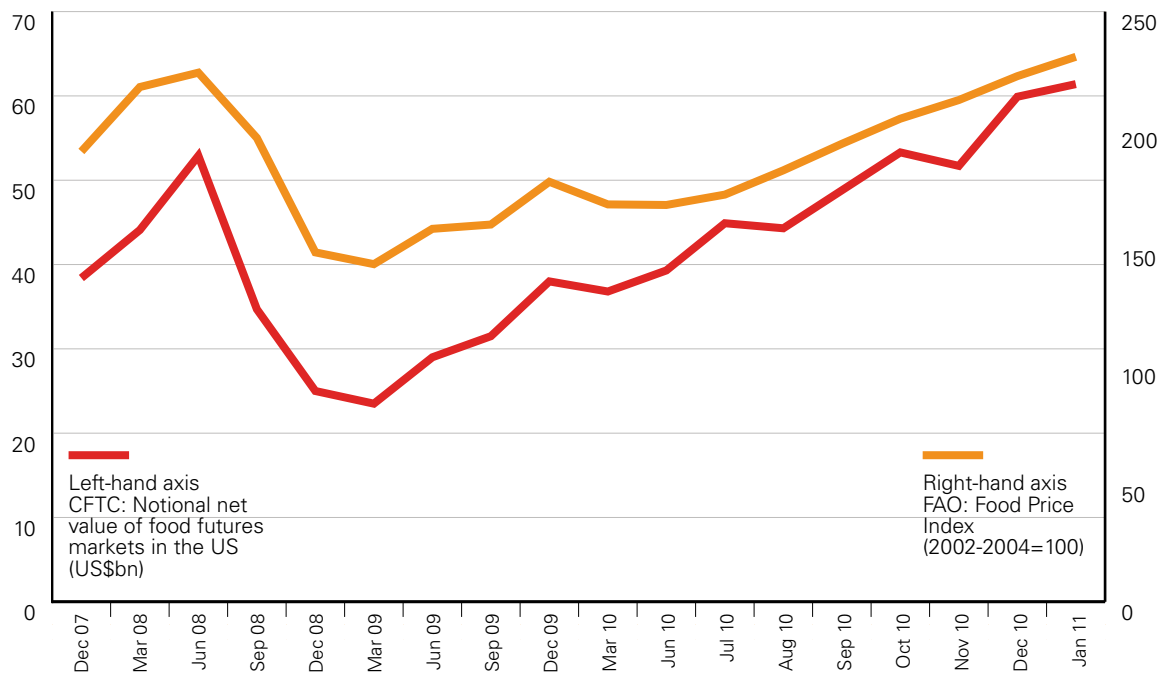
The more investors buy of the index fund, the bigger the long position the fund manager will want to take in the underlying commodity futures, in order to protect themselves in case prices rise and they owe the index-fund investors a higher return. It is this underlying investment in the commodity futures themselves that is now seen as distorting food prices.

Professor Gilbert says: 'The structure of commodity index funds means that index-fund managers buy at any price [when investors are purchasing the units of the index fund] and *keep* buying at any price [so long as investors keep buying into the fund].'

This scenario, in which investment money has poured in, irrespective of how the market is responding

**Figure V** The rise (and fall) of OTC in equity-based and commodity-based derivatives<sup>34</sup>



**Figure VI** Commodity index-fund investment in food futures<sup>35</sup>

to various factors, thereby undermining true 'price discovery', is borne out by a report from the Bank of Japan in March 2011 on commodity price surges.<sup>36</sup>

'While the strong increase in commodity prices has been driven by global economic growth propelled by emerging economies, speculative investment flows into commodity markets have amplified the intensity of the price surge,' it said.

The alternative – for the fund manager to continue selling the index to institutional investors, but to refuse to buy further into the underlying commodities – would be for the fund manager effectively to take on a major bet against further rises in commodity prices. Given that the index is structured to more or less guarantee the fund manager a profit in commissions, there is no obvious need to take such a risk.

Over the last decade, from the introduction of the Commodity Futures Modernization Act 2000 to the financial crisis, the continual growth of institutional investor interest in commodity indices contributed to a growing 'long' position from fund managers – thus keeping prices higher than they would have been, both in the indices and in the individual commodities themselves.<sup>37</sup> It is important to point out that such a pattern is not necessarily inevitable; but it has been the case in the last decade.

In the wake of the 2008 price spike, the UN appointed a Special Rapporteur on the Right to Food, Olivier De Schutter. One of his tasks was to examine the impact of speculation on the prices of basic food commodities.

He concluded: 'The global food price crisis that occurred between 2007 and 2008, and which affects many developing countries to this day, had a number of causes...there is a reason to believe that a significant role was played by the entry into markets for derivatives based on food commodities of large, powerful institutional investors such as...pension funds and investment banks, all of which are generally unconcerned with agricultural market fundamentals. Such entry was made possible because of deregulation in important

commodity derivatives markets beginning in 2000.'<sup>38</sup>

Since his report, a whole raft of government and non-governmental bodies, academics and economists have turned their attention to food prices. The broad conclusion is that although other factors, as outlined elsewhere in this report, are at work, investment has a significant impact on food prices.

To see the scale of the change more clearly, consider Figure V (p17). This shows the extent to which trade in OTC equity-based and commodity-based derivatives grew in the last decade. The spike in commodity-based derivatives is especially striking. Note too that OTC trading in both sets of derivatives remained – even after the crisis – well above the average for 1998-2004.

Figure VI (above) shows the detailed market data collected by US regulators on the scale of food commodity-futures positions specifically due to commodity index-fund investment. It demonstrates how index investment in food rebounded after the onset of the crisis and has surpassed its 2008 peak.

Figure VI also shows the extent of correlation between index-fund related investment in food futures and international food prices, and demonstrates clearly why so many commentators started to focus on the relationship between the two.

In fact, the correlation during this period is 0.89, or, in other words, 89 per cent of the variation in food prices and in commodity index investment in food commodities is common variation – so they move closely together, as shown.

Note that this does not show a comovement of food prices with an index that includes existing food prices.

Instead, it shows correlation between current food prices and investment in the future price of food, indicating that when there is greater investment in food futures, the price for food paid by people today is higher.

But correlation is not causation: just because two things move together does not necessarily imply that one is causing the other. And, of course, commodity



**“ Inefficient food production is damaging at the best of times, but with the environment close to overload, in terms of our demands upon it, the end result will be that not enough food is produced to feed us all**

index investment would be likely to respond to changes in food prices, as investors look to benefit from a perceived trend.

An important working paper published in 2010 by the OECD highlights this issue. After considering the range of academic work in the area, its authors conclude that while some studies found evidence that commodity index funds had affected commodity-futures prices, a number of other studies found ‘little evidence’ of a relationship between the two.<sup>39</sup>

Using data from 2006 to 2009, they conclude that index trading was not responsible, to a statistically significant degree, for the 2008 bubble in food futures prices.

The OECD authors are very clear, however, that ‘the increased participation of index-fund investments in commodity markets represents a significant structural change.’

It is the impact of this structural change that merits closer attention. For the effects of increased investment in the commodity indices, which in turn influences the futures market, would have been making itself felt long before matters came to the boil in 2008 – specifically in relation to price discovery.

Price discovery is the process by which markets – in theory at least – absorb all the available information about a product so that at any moment in time the market price effectively reflects that information, giving appropriate signals and incentives about the value of a product to producers and consumers.

At one time, price discovery would have relied upon fundamentals such as harvests, the speed with which a product could reach market, and the price a buyer is prepared to pay.

At present, however, on traditional commodity exchanges as well as commodity indices, the significance of such fundamentals is greatly reduced. Investors are driven primarily not by specific observations or expectations about food markets but by their desire to hedge their other investments, in stocks and bonds for instance.

They might also take into account broader concerns such as the ‘China bet’ in which they hope that the growing middle class in developing countries will consume more and push prices up.

As a result, price discovery in a market such as wheat can be distorted by macroeconomic movements elsewhere, and so the prices that emerge will not necessarily provide appropriate signals or incentives for producers to invest. And it is that lack of investment in food production itself that drives up prices.

To give a simple example, if the price of cucumbers

rises to great heights, it may appear sensible to invest in cucumber production, even up to the point of planting in desert locations. Producing cucumbers under these conditions would be extraordinarily expensive, but if the futures market indicates that prices will be high enough, then the investment may be appealing nonetheless.

Now, if those prices reflect genuine demand, this may in fact be an appropriate investment – that is, it may be globally efficient, in terms of meeting human needs, to grow those cucumbers in the desert.

On the other hand, if those future prices reflect other, unrelated factors – for example, loose monetary policy in the United States that means investors have more money to allocate and choose to place a proportion of it in commodity index funds – then the investment decision will not be driven by food-market fundamentals, and planting those cucumbers in the desert will almost certainly be inefficient.

Under such circumstances, it would have been better either to invest in a different type of food production, or not to invest in it at all. The result is too much cucumber production, or too little production of more important food types, or both.

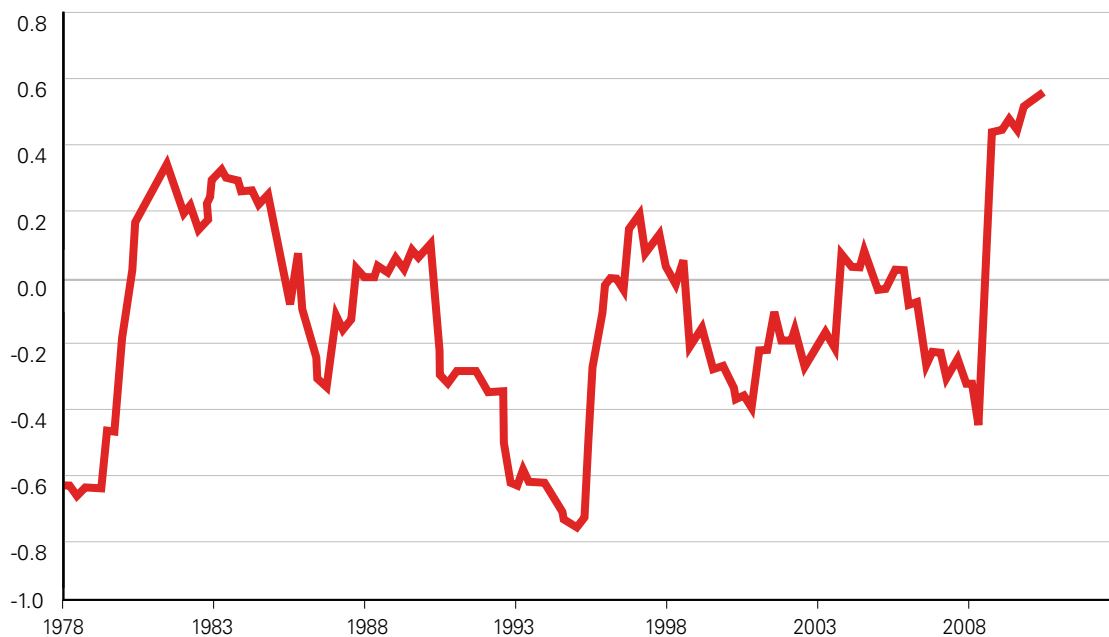
If institutional investment in commodity index funds undermines the process of price discovery in food markets, the signals to producers will be less clear, and will give less useful guidance for investment. As described, this will threaten the efficiency of food production, which in the immediate period implies a risk that the world pays more for its food than necessary, with human costs for those least able to pay.

Inefficient food production is potentially damaging at the best of times. With the environment close to reaching overload, however, in terms of our demands upon it, the end result of inefficient food production will be that not enough food is produced to feed us all.

In economic theory, of course, the price would rise so high that producers would be galvanised into producing more. In a scenario in which large numbers of people have zero purchasing power, however, the fact that demand for food will be unmet will not necessarily produce the price and investment response that theory would predict.

In addition, there may come a point when, regardless of the environmental costs that we are willing to impose in order to increase food production, such a course may simply no longer be possible because of the damage already done to the planet.

Figure VII (on the next page), from research published by the St Louis branch of the Federal Reserve Bank, shows the pattern of correlations

**Figure VII** Rolling correlation coefficient between daily equity and commodity returns<sup>40</sup>

between returns on a 'standard' investment opportunity (equity, that is shares in listed companies), and returns on a commodity index.

Where this is close to zero, there is little common movement between shares and commodities – that is when share prices fall, commodity values are unlikely to do the same, making them a useful hedge. When the correlation is negative, commodity values would move in the opposite direction from equity prices – so that if the latter fall, commodities would tend to rise, making them an even better hedge.

As Figure VII shows, for most of the decade before the financial crisis the correlation was either negative or very close to zero, meaning that commodities were a good hedge for equity investors – they tended to keep their value, or gain, when equities suffered falls.

It is only in the last two years of the graph that the correlation reaches (and exceeds) 0.4, implying that commodities began to move in the same direction as equities – so that for most of the last 30 years it seems that commodity investment would have offered a useful hedge.

As the authors note though, 'portfolios that included commodity derivatives to hedge equity risk did very badly over the last two years studied' – so the hedge was useful for investors until the point when it was most critically needed. When the crisis hit, in fact, not only did equities suffer sharp falls but so too did commodities.

Economists Wei Xiong, from Princeton, and Ke Tang, from the Renmin University of China, have analysed the correlation of different commodity prices to understand better what was actually happening in this period.

They found 'that futures prices of non-energy commodities became increasingly correlated with oil after 2004. In particular, this trend was significantly more pronounced for indexed commodities than for those off the indices...'

They added: 'Our analysis highlights that the increase in the correlations between the returns of different commodity futures started long before the

crisis and cannot be simply attributed to the crisis. Instead, we identify the role of index investors in linking different commodities markets with each other and with outside financial markets.'<sup>41</sup>

In other words, the entrance of index investors had made non-oil commodities increasingly correlated with each other and with oil and so less useful in hedging. This has two main implications. First, and of most concern from a development perspective, is that food prices are likely to have been driven up by investors' expectations of higher oil prices.

Investors would turn to a commodity index fund to take advantage of the manner in which an oil price rise would drive up overall value. But they would also be turning to the fund to diversify, thereby protecting themselves should the anticipated oil price rise not materialise. Because purchases on a commodity index fund lead to purchases in the underlying commodities futures, this is likely to push up food prices above and beyond any impact of oil prices on food production costs.

Secondly, the increased correlations of other commodities with oil have undermined the *raison d'être* of the index funds that initially were supposed to offer an alternative path to investment.

In addition to undermining the process of price discovery, which allows producers to respond effectively, and potentially driving higher prices compared to the scenario of no index investment, this also raises a problem in that the benefits to investors of index investment become increasingly unclear.

Billionaire global investor and philanthropist George Soros told a US Senate committee that institutional investors were distorting the market by investing in commodity indices. He said investing in these indices was based on a 'misconception' and was 'intellectually unsound, potentially destabilising and distinctly harmful in its economic consequences. When the idea was first promoted there was a rationale for it, but the field got crowded and that profit opportunity [has] disappeared,' he added.<sup>42</sup>

## “ The fundamental structure of global financial markets appears to be little different from before the food prices crisis of 2007-2008, the lessons of which we have failed to learn

Olivier De Schutter, UN Special Rapporteur on the Right to Food

Soros was making the point that the more institutional investors piled into commodities, the more closely their movements reflected the broader trends that drive all the other markets in which those investors operate – so the less effective a hedge the commodity investments became. The same change in price determination that causes problems for producers and users of the commodities also threatens the benefits to investors.

Confirming the trend, the Bank of Japan reported: ‘The dynamics of global commodity prices has been changing as well, in accordance with the growing presence of financial investors in commodity markets. The entry of new financial investors has paved the way for the “financialization of commodities.” Consequently, global commodity markets have become more sensitive to portfolio rebalancing by financial investors, which has made commodity markets more correlated with other asset markets, including major equity markets.’<sup>43</sup>

There are, ultimately, two key issues for food markets to arise from the involvement of institutional investors through commodity index funds:

- what have the effects been on the process of price discovery?
- what have the benefits been for investors; and given these, what is likely to follow?

In answer to the first, it is clear that further analysis is needed before we will be able fully to understand the nature and power of the structural change in commodity markets that followed their liberalisation to institutional index investors.

In the immediate term, the biggest problem with the continuing growth of commodity index investment seems to be that it has supported not only more complex price determination, but specifically, for the moment at least, price rises.

Institutional investors found in the commodity indices a place to park their money that so far has always delivered a return. Clearly the value of an index can fall – but that has yet to happen for any sustained period. In the meantime, constantly climbing food prices have meant a greater proportion of the world’s population going hungry.

In his study of the 2008 price spike, Gilbert says, ‘Futures markets factors appear to have amplified fundamentally based price movements over the recent boom... However, speculation does not appear directly to be the main cause. Index-based investment appears more likely to be the major culprit. This tallies with the

views of George Soros and Michael Masters.’<sup>44</sup>

As De Schutter has highlighted: ‘The fundamental structure of global financial markets appears to be little different from before the food prices crisis of 2007-2008, the lessons of which we have failed to learn.

‘It is crucial that we do so, because we once again find ourselves in a situation where basic food commodities are undergoing supply shocks.’<sup>45</sup>

### Unintended consequences

According to the US Senate’s Permanent Sub Committee on Investigations, the enacting of the Commodity Futures Modernization Act 2000 allowed US banks, broker-dealers, and other financial institutions to develop, market, and trade a variety of unregulated financial products.

This, the committee said in a report this year into the financial crisis, paved the way over the course of the following decade for a relatively small number of US banks and broker-dealers to become giant financial conglomerates involved in collecting deposits; financing loans; trading equities and commodities; and issuing, underwriting, and marketing billions of dollars in stock, debt instruments, insurance policies, and derivatives.

‘By 2005, as US financial institutions reached unprecedented size and made increasing use of complex, high-risk financial products, government oversight and regulation was increasingly incoherent and misguided,’ said the report.

Now the world is moving, however, to address the issue of the impact of markets on food prices. In November 2010, the International Organization of Securities Commissions formed a task force to supervise the OTC derivatives markets, which is being led by the US Securities and Exchange Commission and CFTC, and the UK’s FSA.

For policy makers, the greater transparency around OTC derivatives that has been pursued since the crisis is an absolute minimum, given the scale of these markets and the potential impact. Anything with such potential to cause human damage should at least be closely monitored.

No one set out with the intention of exacerbating global hunger, but it is clear that further research is needed on the role of the markets.

Increasingly, the weight of evidence tends to support the view that rising food prices and the associated human suffering have been the unintended consequences of the ‘financialisation’ of food. Questions have been raised as to whether, or to what extent, investors’ activity in commodity derivative

# US\$1bn

## Goldman Sachs' estimated 2009 profits from its commodity index fund

markets should be curtailed. The evidence is not supportive of shutting down such markets due to the inevitable distortions and disruption this would entail.<sup>46</sup>

However, it was the opening up of commodity indices in the first place, compounded by the liberalisation introduced by the US Commodity Futures Modernization Act 2000, which opened the floodgates for money to flow into the market, and appears to have had profound consequences for people living in poverty around the world.

The key lesson to be learned from this is that when markets have implications for human nutrition and even survival, the introduction of major changes should be thoroughly scrutinised in advance to assess the risks entailed.

In an era of globalised markets and interconnected economies, where the present financial crisis teaches us that regulatory oversights or failure can have grave international effects, it is unacceptable that dramatic changes such as those allowed by the US Commodity Futures Modernization Act 2000 could be rushed through as a 262-page rider to an 11,000-page report. With many of the commodities involved relating directly to human nourishment, far greater attention should have been paid to its likely consequences.

The scant notice the Act received was commented on recently by the Sunlight Foundation in the US, which campaigns for greater transparency in government.

'In the waning days of the 106th Congress and the Clinton administration, Congress met in a lame-duck session to complete work on a variety of appropriations bills that were not passed prior to the 2000 election,' it said on its blog.

'There were other, unmet pet priorities of some lawmakers that were under consideration as well. One of those pet priorities was a 262-page deregulatory bill, the Commodity Futures Modernization Act 2000. Tucked into a bloated 11,000-page conference report as a rider, with little consideration and no time for review, this bill would be viewed only eight years later as part of the failure of our political system abetting a financial storm that brought the world to its knees.'<sup>47</sup>

### Winners and losers

At present, the upward spiral of the market that it helped trigger shows no sign of abating. To the extent that 'long' food commodity positions are a bet on the growth of consumption among emerging middle classes in growing developing countries such as China, nor will it any time soon.

It has been argued that US and global monetary

conditions have also been important contributors to the upward trend. Specifically, loose US monetary policy in the early part of the millennium, and the subsequent injections of large amounts of cash into the economy through quantitative easing, is said to have created money that needed a home – which investors found in commodities.

A recent paper by IMF researchers appeared to bear this out, confirming earlier findings that 'global liquidity had a minimal impact on oil prices [but] we found it to be a more useful predictor of a broad-based commodity price index'.<sup>48</sup> ('Global liquidity' is used as a rough measure of the amount of money floating around, typically thought of as reflecting the speed or ease with which a given asset can be swapped for cash.)

To the extent that commodity prices have come to be driven by these global financial factors, there is the potential for quite a sharp reversal of institutional investor positions in these markets.

That is to say, as the world economy continues its recovery and we see the end of quantitative easing, and a general reduction in the extent to which central banks are pumping money into the economy, the conditions that supported higher commodity prices may well reverse and institutional investors will have less cash to allocate.

In addition, as we have shown above, commodities are now correlated with other assets, reducing their attraction as 'hedges' against risk in other investments. As a result, investors might start reducing this element of their overall portfolios.

As this report goes to press (in early May 2011), the first signs have become apparent of a possible bursting of the broad commodities bubble, with some US\$99bn of market value wiped out in a matter of days. The losses were largely in non-food commodities, oil and silver in particular; but it remained to be seen whether the markets stabilised or losses spread to other commodities, fuelled by the index links discussed here.<sup>49</sup>

A reduction in the amount of investors' money for whatever reason could have a powerful effect on food prices, *regardless* of there being no change in the fundamentals such as the supply and demand of the commodities themselves.

Once again, this would create winners and losers, but would certainly not support long-term investment in agricultural production to overcome problems of human hunger. The price of food might fall, to the short-term benefit of consumers at least, but the producers – those who have invested in production – would suffer, with uncertain implications for future food production.



**“ In terms of blame for the situation that has developed, policy makers are at least guilty of oversight that with hindsight can be considered reckless**

In time, food commodity markets are likely to settle down to establish new and potentially less volatile price-determination patterns, where the role of fundamentals is reasserted. Greater transparency will be important to that process, and to preventing abuses.

But in the aftermath of the food-price spikes of 2008 and today, it is important that future national regulatory changes, above all in large financial markets, are subject to scrutiny that effectively weighs the likely wider implications for food prices in particular and human development and poverty eradication more generally.

In terms of blame for the situation that has developed, policy makers are at least guilty of oversight that with hindsight can be considered reckless. As stated, it was the deregulation of the commodities investment that precipitated the arrival of huge amounts of money into the markets.

The hedge funds, with the exception of specific cases of manipulation, do not appear to be hugely culpable. And the important contributory role of the institutional investors has been an unwitting one.

The investment banks that created the commodity indices in the first place, however, can hardly be considered blameless. These organisations not only created the indices and led the marketing that drove the enormous growth in food commodity trade that has been documented here, but were also the prime beneficiaries of the entire process.

The World Development Movement (WDM), a partner of Christian Aid, last year calculated Goldman Sachs had made US\$1bn in 2009 alone from its commodity index fund.<sup>50</sup> In March this year, WDM returned to the issue with a new report that said the index run in the UK by Barclays Capital, the investment banking arm of Barclays Bank, made as much as £340m a year from the food commodity side of the fund it runs.<sup>51</sup>

The clearer the evidence becomes for real-world costs of the financial engineering that generates such profits for the middlemen, the more questions must be raised about whether the underlying business model is anything but irresponsible.



A trader signals orders in the corn options pit at the Chicago Board of Trade. Trading in food commodities is now thought to play a key role in price rises globally, which put the price of food beyond the reach of the world's poor

## ENDNOTES

- 1 *Song von der Ware* (The Trader's Song), from Bertolt Brecht's *Die Massnahme* (The Measures Taken).
- 2 *The 2008 Food Price Crisis: Rethinking Food Security Policies*, Anuradha Mittal, UN Conference on Trade and Development (UNCTAD), 2009, [unctad.org/en/docs/gdsmdpg2420093\\_en.pdf](http://unctad.org/en/docs/gdsmdpg2420093_en.pdf)
- 3 'Number of hungry people rises to 963 million. High food prices to blame – economic crisis could compound woes', FAO, 12 September 2008, [fao.org/news/story/en/item/8836/](http://fao.org/news/story/en/item/8836/)
- 4 *The State of Food Insecurity in the World 2010*, FAO, 2010, ISBN 978-92-5-106610-2, [fao.org/publications/sofi/en/](http://fao.org/publications/sofi/en/)
- 5 FAO, Monthly Real Food Price Indices, [fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/](http://fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/)
- 6 Ibid.
- 7 'Famine: the other F word', Business Insider, 24 January 2011, [businessinsider.com/famine-the-other-f-word-2011-1](http://businessinsider.com/famine-the-other-f-word-2011-1)
- 8 'Food prices hit "dangerous levels": World Bank chief', Reuters, 15 February 2011, [reuters.com/article/2011/02/15/us-worldbank-food-idUSTRE71E5H720110215](http://reuters.com/article/2011/02/15/us-worldbank-food-idUSTRE71E5H720110215)
- 9 Ibid.
- 10 *Emerging Consumer Survey 2011*, Credit Suisse Research Institute, January 2011, [credit-suisse.com/news/doc/media\\_releases/consumer\\_survey\\_0701\\_small.pdf](http://credit-suisse.com/news/doc/media_releases/consumer_survey_0701_small.pdf)
- 11 Rabah Arezki and Marcus Brückner, *Food Prices and Political Instability*, IMF Working Paper, March 2011, [imf.org/external/pubs/ft/wp/2011/wp1162.pdf](http://imf.org/external/pubs/ft/wp/2011/wp1162.pdf)
- 12 *The Future of Food and Farming*, Final Project Report, Foresight and the Government Office for Science, London, 2011, [bis.gov.uk/assets/bispartners/foresight/docs/food-and-farming/11-546-future-of-food-and-farming-report.pdf](http://bis.gov.uk/assets/bispartners/foresight/docs/food-and-farming/11-546-future-of-food-and-farming-report.pdf)
- 13 Ibid.
- 14 Ibid.
- 15 'Sarkozy calls for curbs on commodity speculators', Reuters, 27 January 2011, [reuters.com/article/2011/01/27/us-davos-sarkozy-commodities-idUSTRE70Q2U420110127](http://reuters.com/article/2011/01/27/us-davos-sarkozy-commodities-idUSTRE70Q2U420110127)
- 16 'Commodities daily: spectres of speculation', *Financial Times*, 28 January 2011, [ft.com/cms/s/0/cf452626-2abf-11e0-a2f3-00144feab49a.html#axzz1KcpGYr00](http://ft.com/cms/s/0/cf452626-2abf-11e0-a2f3-00144feab49a.html#axzz1KcpGYr00)
- 17 'EU executive pledges curbs on commodity speculators', Reuters, 3 February 2011, [forexyard.com/en/news/executive-pledges-curbs-on-commodity-speculators-2011-02-02T130043Z-EU](http://forexyard.com/en/news/executive-pledges-curbs-on-commodity-speculators-2011-02-02T130043Z-EU)
- 18 'Free markets can still feed the world', *Financial Times*, 5 January 2011, [ft.com/cms/s/0/64ccfdae-1904-11e0-9c12-00144feab49a.html#axzz1JPYolFRz](http://ft.com/cms/s/0/64ccfdae-1904-11e0-9c12-00144feab49a.html#axzz1JPYolFRz)
- 19 'Hedge funds accused of gambling with lives of the poorest as food prices soar', *The Guardian*, 19 July 2010, [guardian.co.uk/business/2010/jul/19/speculators-commodities-food-price-rises](http://guardian.co.uk/business/2010/jul/19/speculators-commodities-food-price-rises)
- 20 'Commodities investing vs. commodities trading', Seeking Alpha, 18 May 2006, [seekingalpha.com/article/10843-commodities-investing-vs-commodities-trading-etfs-gld-dbc-slv](http://seekingalpha.com/article/10843-commodities-investing-vs-commodities-trading-etfs-gld-dbc-slv)
- 21 *Testimony of Michael W Masters, Managing Member/Portfolio Manager, Masters Capital Management, LLC, before the Committee on Homeland Security and Governmental Affairs, United States Senate*, 20 May 2008, p2, [hsgac.senate.gov/public/\\_files/052008Masters.pdf](http://hsgac.senate.gov/public/_files/052008Masters.pdf)
- 22 'History of commodity futures in Japan', Dot Commodity, [commodity.co.jp/english/study/History\\_of\\_Commodity\\_Futures\\_in\\_Japan.html](http://commodity.co.jp/english/study/History_of_Commodity_Futures_in_Japan.html)
- 23 *The Arthashastra of Kautilya*, Hinduwebsite, [hinduwebsite.com/history/kautilya.asp](http://hinduwebsite.com/history/kautilya.asp)
- 24 *Politics, Book One*, Aristotle, 350BC, The Internet Classics Archive, [classics.mit.edu/Aristotle/politics.html](http://classics.mit.edu/Aristotle/politics.html)
- 25 Continuous Commodity Index (CCI), Source: Commodity Research Bureau via [wikiposit.org](http://wikiposit.org), [wikiposit.org/uid?CRB.CCI](http://wikiposit.org/uid?CRB.CCI) Update: [wikiposit.org/w?action=dl&dltype=comma%20separated&sp=monthly&uid=CRB.CCI](http://wikiposit.org/w?action=dl&dltype=comma%20separated&sp=monthly&uid=CRB.CCI)
- 26 Goldman Sachs Commodity Index, Investor Glossary, Dogs of the Dow, [investorglossary.com/goldman-sachs-commodity-index.htm](http://investorglossary.com/goldman-sachs-commodity-index.htm)
- 27 'Financial speculation and the food crisis', Third World Network, Third World Resurgence No. 240/241, August-September 2010, pp24-29, [twinside.org.sg/title2/resurgence/2010/240-241/cover02.htm](http://twinside.org.sg/title2/resurgence/2010/240-241/cover02.htm)
- 28 *Commodities Market Speculation: The Risk to Food Security and Agriculture*, Institute for Agriculture and Trade Policy, November 2008, [iatp.org/iatp/publications.cfm?refid=104414](http://iatp.org/iatp/publications.cfm?refid=104414)
- 29 'Value of global pension funds hits record high at £16tn, study shows', *The Guardian*, 7 February 2011, [guardian.co.uk/business/2011/feb/07/pension-funds-assets-liabilities?INTCMP=SRCH](http://guardian.co.uk/business/2011/feb/07/pension-funds-assets-liabilities?INTCMP=SRCH)
- 30 Ibid.
- 31 *Excessive Speculation in the Wheat Market*, United States Senate Permanent Subcommittee on Investigations, 2009, [hsgac.senate.gov/public/\\_files/REPORTExcessiveSpeculationintheWheatMarketwoexhibitchartsJune2409.pdf](http://hsgac.senate.gov/public/_files/REPORTExcessiveSpeculationintheWheatMarketwoexhibitchartsJune2409.pdf)
- 32 P Basu and WT Gavin, 'What explains the growth in commodity derivatives?', Figure 1A, p40, *Federal Reserve Bank of St Louis Review* 93(1), pp37-48, 2011, [research.stlouisfed.org/publications/review/11/01/37-48Basu.pdf](http://research.stlouisfed.org/publications/review/11/01/37-48Basu.pdf)
- 33 Professor Christopher Gilbert, interview with Christian Aid, February 2011.
- 34 P Basu and W Gavin, 'What explains the growth in commodity derivatives?', Figure 2A, p41, *Federal Reserve Bank of St Louis Review* 93(1), pp37-48, 2011, [research.stlouisfed.org/publications/review/11/01/37-48Basu.pdf](http://research.stlouisfed.org/publications/review/11/01/37-48Basu.pdf) Data source: BIS derivatives statistics, [bis.org/statistics/derstats.htm](http://bis.org/statistics/derstats.htm)
- 35 Commodity index-fund data from US CFTC, [cftc.gov/MarketReports/IndexInvestmentData/index.htm](http://cftc.gov/MarketReports/IndexInvestmentData/index.htm) Food price index from FAO: [fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/](http://fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/)
- 36 Yasunari Inamura, Tomonori Kimata, Takeshi Kimura and Takashi Muto, 'Recent surge in global commodity prices – impact of financialization of commodities and globally accommodative monetary conditions', *Bank of Japan Review* 2011-E-2, March 2011, [boj.or.jp/en/research/wps\\_rev/rev\\_2011/data/rev11e02.pdf](http://boj.or.jp/en/research/wps_rev/rev_2011/data/rev11e02.pdf)
- 37 See note 36.

**38** Olivier De Schutter, *Food Commodities Speculation and Food Price Crises: Regulation to Reduce the Risks of Rice Volatility*, UN Special Rapporteur on the Right to Food, Briefing Note 02, September 2010, [www2.ohchr.org/english/issues/food/docs/Briefing\\_Note\\_02\\_September\\_2010\\_EN.pdf](http://www2.ohchr.org/english/issues/food/docs/Briefing_Note_02_September_2010_EN.pdf)

**39** SH Irwin and DR Sanders, 'The impact of index and swap funds on commodity futures markets: preliminary results', *OECD Food, Agriculture and Fisheries*, Working Papers, No 27, OECD Publishing, 2010, [oecd-ilibrary.org/agriculture-and-food/the-impact-of-index-and-swap-funds-on-commodity-futures-markets\\_5kmd40wl1t5f-en](http://oecd-ilibrary.org/agriculture-and-food/the-impact-of-index-and-swap-funds-on-commodity-futures-markets_5kmd40wl1t5f-en)

**40** P Basu and W Gavin, 'What explains the growth in commodity derivatives?', Figure 5, p45, *Federal Reserve Bank of St Louis Review* 93(1), pp 37-48, 2011, [research.stlouisfed.org/publications/review/11/01/37-48Basu.pdf](http://research.stlouisfed.org/publications/review/11/01/37-48Basu.pdf) The equity index is the S&P 500. The commodity index is the S&P GCSI. The returns are calculated as the per cent change in the total return. Source: Haver Analytics and authors' calculations.

**41** Ke Tang and Wei Xiong, *Index Investment and Financialization of Commodities*, National Bureau of Economic Research, Working Paper No 16385, September 2010, [princeton.edu/~wxiong/papers/commodity.pdf](http://princeton.edu/~wxiong/papers/commodity.pdf)

**42** 'Soros paints bleak picture on commodity price "bubble"', *Financial Times*, 5 June 2008, [ft.com/cms/s/0/21b147cc-3299-11dd-9b87-0000779fd2ac.html#axzz1JPYolFRz](http://ft.com/cms/s/0/21b147cc-3299-11dd-9b87-0000779fd2ac.html#axzz1JPYolFRz)

**43** See note 36.

**44** See note 32.

**45** See note 35.

**46** Srinivasan, S, 'Futures trading in agricultural futures: is the government ban logical?', *Centre for Civil Society Working Paper* 193, 2008, [ccs.in/ccsindia/downloads/intern-papers-08/Futures-Trading-in-Agricultural-Commodities-193.pdf](http://ccs.in/ccsindia/downloads/intern-papers-08/Futures-Trading-in-Agricultural-Commodities-193.pdf)

**47** 'Read the Bill: the Commodity Futures Modernization Act', The Sunlight Foundation, 1 April 2009, [sunlightfoundation.com/blog/2009/04/01/read-the-bill-the-commodity-futures-modernization-act/](http://sunlightfoundation.com/blog/2009/04/01/read-the-bill-the-commodity-futures-modernization-act/)

**48** Reginald Darius and Sören Radde, 'Can global liquidity forecast asset prices?', *IMF Working Paper WP/10/96*, 2010, p5, [imf.org/external/pubs/ft/wp/2010/wp10196.pdf](http://imf.org/external/pubs/ft/wp/2010/wp10196.pdf)

**49** 'Commodities, US Futures Advance; Euro Strengthens as Greek Bonds Decline', Bloomberg, 9 May 2011, [bloomberg.com/news/2011-05-09/commodities-rally-snapping-five-day-slump-stocks-euro-korean-won-rise.html](http://bloomberg.com/news/2011-05-09/commodities-rally-snapping-five-day-slump-stocks-euro-korean-won-rise.html)

**50** Tim Jones, *The Great Hunger Lottery: How Banking Speculation Causes Food Crises*, World Development Movement, July 2010, [wdm.org.uk/food-speculation/great-hunger-lottery](http://wdm.org.uk/food-speculation/great-hunger-lottery)

**51** Brett Scott, *Barclays PLC and Agricultural Commodity Derivatives*, March 2011, [wdm.org.uk/sites/default/files/Brett%20Scott%20-%20BarCap%20Report%20March%202011.pdf](http://wdm.org.uk/sites/default/files/Brett%20Scott%20-%20BarCap%20Report%20March%202011.pdf)



# CONFLICT A HUNGRY MAN IS AN ANGRY MAN

How conflict and hunger feed off each other



Gaza 2009: a Palestinian chicken farmer disposes of birds killed in the Israeli onslaught



## 22

The number of countries affected by 'protracted crises'

The relationship between war and hunger is as old as humankind itself – two of the four horsemen of the Apocalypse, showing just how deeply the symbiosis is embedded into our collective psyche.

War causes hunger, and hunger causes war. Even now, in a world more conscious, and in parts more concerned than it has ever been, about global human suffering, that remorseless logic holds true.

Today, of course, it is no longer just a question of a vanquishing army laying waste to the land to starve people into submission – although that still happens.

There are numerous ways in which violent conflict causes hunger, while the role that empty stomachs play in persuading people to take up arms is a factor in many conflicts.

At a time when member states of the United Nations, which is all of us bar Kosovo, Taiwan and the Vatican See, are committed to halving world hunger in the next three years, conflict stands as one of the more intractable reasons for its continued existence.

Some 40 per cent of the world's hungry, or undernourished, live in just two countries, China and India, which despite facing regional insurgencies, and in India's case in particular, communal tensions, can hardly be said to be conflict-ridden.<sup>1</sup>

Another 20 per cent, however – 166 million people – live in places said to be in 'protracted crisis' by the UN.

UN agencies the FAO and the World Food Programme (WFP) use this term to cover natural disasters, as well as war and other 'human-induced catastrophes'.<sup>2</sup>

Their list of 22 countries so affected (see map below), however, shows that with the exception of Haiti and North Korea, all are either engaged in conflict of varying intensity at present, or have been recently.

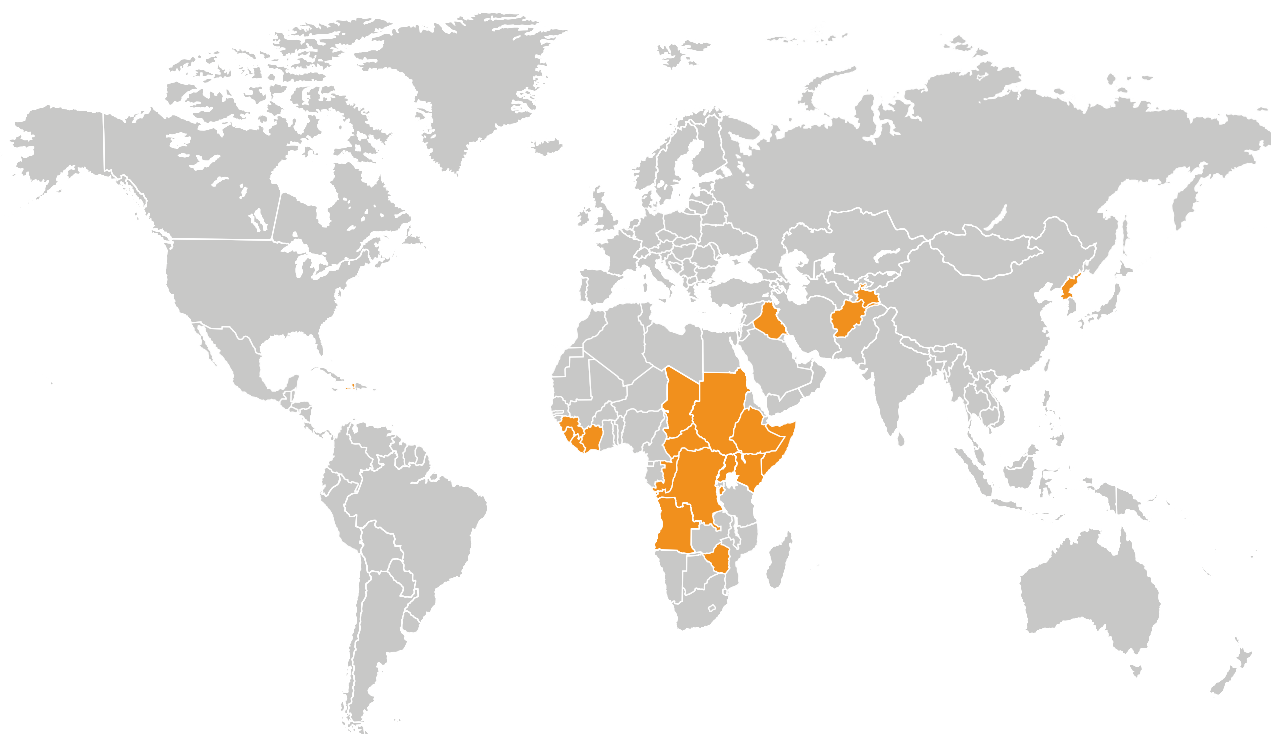
The list does not tell the full global story of who is hungry because of conflict. Not every country engaged in strife, either within or beyond its borders, is included, only those where the food problems are most severe.

Hence Colombia is absent, and Burma too, the latter having apparently successfully fulfilled its target for cutting hunger under the Millennium Development Goals (MDGs). Yemen doesn't feature either, although when UNICEF gained rare access to a northern province during a fragile truce between army and rebels in 2010, 26,000 children were found to have acute malnutrition.<sup>3</sup>

Nor is the impact included of more recent events such as the fighting in Libya, where within days of hostilities breaking out, the WFP had moved in more than 1,500 tonnes of food supplies and placed another 6,000 tonnes on standby.<sup>4</sup>

In the case of many of the countries named – all bar

### The 22 countries affected by protracted crises, according to the UN



## “ Food is used as a weapon, food systems are destroyed in the course of conflict, and food insecurity persists as a legacy of conflict

International Food Policy Research Institute

five of which are in Africa – it is clear too that conflict is not the sole reason for food shortages.

In Afghanistan, opium production is also a factor, while in Tajikistan, cotton, or ‘white gold’, is the main crop. In many African countries, meanwhile, unfair and damaging economic systems imposed by rich countries and the international financial institutions they control as a condition of trade and aid must also take some of the blame.

But the correlation between hunger and conflict nonetheless stands as marked as it has ever been, with most wars of the late 20th century and early 21st century being ‘food wars’ according to the IFPRI. ‘Food is used as a weapon, food systems are destroyed in the course of conflict, and food insecurity persists as a legacy of conflict,’ it says.<sup>5</sup>

Food insecurity, it adds, whether in the form of actual shortages, a lack of access to food, malnutrition, or some combination of the three, ‘can also be a source of conflict’.

In a paper for the IFPRI on breaking the links between conflict and hunger in Africa, authors Ellen Messer and Marc Cohen call on policy makers to devote more attention to low-intensity and local conflicts.

They explain: ‘These struggles, often over access to agricultural resources, can establish pockets of discontent, reduce food production significantly and flare up into greater conflicts.’<sup>6</sup>

A recent study by the UN’s Internal Displacement Monitoring Centre and the Norwegian Refugee Council shows just how high the human cost can be.

The study revealed that in 2010 some 27.5 million people were displaced within their own countries by armed conflict, generalised violence and human-rights violations, the highest number in a decade.<sup>7</sup>

As has been the case in conflicts since time immemorial, targeting crops to drive people from their homes was a feature in a number of cases.

‘In some countries, parties to conflict or perpetrators of violence often acted to ensure that people displaced from the land could not return, for example, by destroying their houses and crops,’ said the study.

‘Elsewhere, such destruction was intended to weaken insurgency movements by undermining supposed civilian support bases. Thus in Myanmar [Burma] and Pakistan the burning of houses and crops has been used to punish civilians suspected of collaborating with insurgent groups...’<sup>8</sup>

Gaining control of land resources for the income they provided was a feature of conflicts in DRC, Kenya and Somalia, while in Colombia, ‘populations continued to be displaced... by armed groups acting

in collusion with economic interests seeking to grab their land and use it to cultivate cash crops including palm oil and coca.’

Conflict has the potential to disrupt virtually every aspect of agricultural production, preventing planting, weeding or harvesting, either because it is too dangerous or because there is a shortage of able bodies, due to people having fled, been killed, or, particularly but not exclusively in the case of men, recruited into armies and militias.<sup>9</sup>

People will also go hungry when soldiers extort food, or destroy produce and livestock, either as an act of aggression, or to stop it falling into enemy hands. The loss of livestock will affect children directly, as there will be no milk, but will also see the destruction of a family’s traditional cash reserves – for in many places cattle and other livestock are sold when times are hard.

In addition, transport to market may be impossible, and the markets themselves disrupted. Lack of safety and, eventually, the deterioration of roads, will deter many traders, who before making the journey will want to ensure their own security, and that of their vehicles and goods, as well as being assured of profits and customers.

The impact of conflict on food security goes far beyond the battle front, as the FAO warned in a 2005 report about the rising number of food emergencies where conflict was cited as the main cause.<sup>10</sup>

‘The existence of armed conflict can dramatically slow a country’s development process, especially in low-income countries. It combines local and national impact, affecting agricultural production as well as the social, economic and physical infrastructure,’ it said.

‘The impact of armed conflict is not limited to the conflict area. It diverts resources from national development programmes and weakens government capacity, indirectly affecting the provision of services to the whole population.

‘It usually affects the neighbouring countries due to the influx of refugees and its consequences, the increase of military expenditure and the impact on the regional economy.

‘Neither is the impact limited to the duration of the conflict itself. Economic and social costs of armed conflict, such as high military expenditure, capital flight, heightened mortality and morbidity rates, or consequences of disability at household, community and national levels persist for years.’

Conflict, it concluded, could be considered as one of the most significant obstacles to sustainable development ‘as it can destroy in hours and days what has taken years and decades to develop’.

# 27.5m

People displaced within countries by armed conflict, generalised violence and human-rights violations

In the US, the World Hunger Education Service, in highlighting the long-term impact of conflict on food security, also points out that years of warfare leaves younger generations unprepared for anything other than fighting.

When peace finally arrives, rebuilding communities, reconstructing waterworks, replanting trees, building up seeds, livestock and tools to restore livelihoods, and learning to trust again are all formidable challenges.

'None of these are quick turnarounds, and all contribute to continuing underproduction, poverty, malnutrition and the risk of renewed violence,' it says.<sup>11</sup>

The part hunger can play in causing conflict is also well documented. As mentioned in the first chapter of this report (see p9), the IMF says that after considering data from 120 countries between 1970 and 2007, it concluded that in low-income countries, food-price rises significantly increase political unrest.

That is not to say, however, that bad political leadership and poor governance do not in many cases have a significant role to play.

Now a further spectre has arisen to exacerbate the relationship between war and hunger – the impact of climate change. In the US, the Central Intelligence Agency (CIA) has opened a Center on Climate Change and National Security to look at the security impact of phenomena such as desertification, rising sea levels, population shifts, and heightened competition for natural resources.<sup>12</sup>

The move followed a report from the National Intelligence Council that warned: 'Perceptions of a

rapidly changing environment may cause nations to take unilateral actions to secure resources, territory, and other interests.

'In the worst case, this could result in interstate conflicts if government leaders deem assured access to energy resources, for example, to be essential for maintaining domestic stability and the survival of their regime.'<sup>13</sup>

To some extent these warnings can be seen as very much the product of a military/security mindset. However, there is no doubt that as climate change worsens, intense efforts will be needed to ensure disagreements over natural resources are resolved peacefully.

The following case histories featuring countries where Christian Aid works through partner organisations to help alleviate poverty illustrate the impact of different types of conflict.

The inhabitants of Gaza have been living under a virtual siege since Israel intensified a blockade in 2007. Today 80 per cent of the population need food aid.

It is more than 30 years since there was peace in Afghanistan, during which time an array of different forces have been at war with each other. Its diverse terrain allows for many different crops, and it was once renowned for its fruit exports. Today, however, more than half of children under the age of five are malnourished.<sup>14</sup>

And in central and eastern Africa, the activities of just one group of fighters has forced many thousands to flee their homes and farms, with the impact now felt in four countries.



Christian Aid/Amanda Ferrant

Keeping children well-fed and healthy in a camp in Thailand for refugees from Burma

## Case study

### Central and Eastern Africa

#### The Lord's Resistance Army



**Lord's Resistance Army attacks** Source: Reliefweb 2010

It began in the mid-1980s as a ragtag group from northern Uganda's Acholi tribe following a self-styled mystic and medium, Alice Auma, who claimed to be possessed of the spirit of a dead Italian officer called Lakwena.<sup>1</sup>

Today, the Lord's Resistance Army (LRA) is a highly mobile force with a reputation for butchery that strikes fear across vast swathes of territory in four countries of central and east Africa.

In 1986, Yoweri Museveni's National Resistance Army had just seized power in Uganda when it was challenged by an insurgent group of former Ugandan government soldiers that enjoyed widespread Acholi support.

When the insurgents were beaten, Alice and her followers took their place, advancing to within 80 miles of Kampala before it became clear to her devotees that the immunity she promised from bullets didn't actually work.

Alice fled, later dying in a refugee camp in neighbouring Kenya, but her quasi-revolutionary movement, now called the LRA, lives on, led by a

messianic commander called Joseph Kony, reputedly her cousin, who is wanted by the International Criminal Court (ICC).<sup>2</sup>

During the fighting in Uganda that lasted decades, more than 10,000 people were slaughtered, one million plus displaced, and an estimated 60,000 children abducted.<sup>3</sup>

Largely driven from the country in recent years, the LRA has now spread its activities to the neighbouring states of Democratic Republic of Congo (DRC), Sudan and the Central African Republic (CAR), its goals unclear, its strength unknown – estimates vary from several hundred to several thousand – and its taste for grotesque violence unrelenting.

Over the years, various attempts have been made to end its reign of terror once and for all, the most recent being a Ugandan army offensive into northeastern DRC in 2008.<sup>4</sup>

This served only to goad Kony's fighters, many of them reputedly child soldiers, to disperse into smaller groups, which then embarked on a series of retaliatory mass rapes and executions that on Christmas Eve 2008

resulted in the killing of 865 people in DRC and southern Sudan.<sup>5</sup>

Less than 12 months later, 300 more people were hacked to death in the same region, earning the LRA the dubious accolade of the most deadly militia in DRC.<sup>6</sup>

Today the mere whisper of approaching LRA militia, even from hundreds of kilometres away, causes people to flee, leaving vast swathes of potentially fertile farmland to rot.

Since September 2008 the LRA has killed more than 2,300 people, abducted more than 3,000 and displaced more than 400,000 others across DRC, CAR and southern Sudan, with attacks escalating week on week.<sup>7</sup>

The impact of the group's activities on the region's food security has been enormous. 'Attacks are often related to actions of extreme cruelty – frequent murders and mutilations, as well as amputations that are clearly aimed at terrorising locals,' says Marcelo Garcia, Africa director of the humanitarian agency Intersos, which works across the region.<sup>8</sup>

'Many missed planting and harvesting seasons in 2010 due to their displacement and also to the looting of crops from their fields. As a consequence, food-related problems could become a major issue of concern in the next months.'

Kony, 49, says his group will not disarm until the ICC drops war crimes charges against him and other senior LRA leaders.<sup>9</sup>

#### Uganda

Although the LRA is now scattered from its original stronghold in northern Uganda, its legacy remains in the number of internally displaced persons (IDPs) in the north and west of the country, numbering at least 166,000 by the end of 2010.<sup>10</sup>

Those who have gone back to their original homes have returned to areas



where food is in short supply and there are few basic services. The LRA's activities over many years helped ensure a chronic lack of development in much of the country.

Indeed, of the 33 million people living in Uganda, 6.1 million are undernourished, many of them originating from the north, and one-fifth of all under-fives are underweight.<sup>11</sup>

Uganda is currently also home to some 84,696 Congolese refugees, mainly from northern and eastern DRC, most of whom have arrived as a result of the LRA attacks that followed the Ugandan military's 2008 DRC offensive.<sup>12</sup> In late April 2011, two people were killed and dozens injured in unrest caused in part by rising food and fuel prices.

## DRC

Against a backdrop of decades of dictatorship, endemic corruption, and a civil war often cited as the bloodiest conflict since the Second World War, people living in northeastern DRC now face the ever-present threat of LRA attacks, which averaged almost four a week in 2010 across an area approximately the size of the UK, as well as attacks from other armed groups.<sup>13</sup>

The presence of the LRA is a particularly cruel addition to existing problems in the country, where an estimated 41.9 million out of 60.8 million inhabitants are undernourished, and a third are not always able to find enough to eat.<sup>14</sup>

Since September 2008 the group has killed more than 1,900 people and kidnapped more than 2,500, with some 35 murdered and more than 17,000 displaced since January this year.<sup>15</sup>

## Southern Sudan

More than 20 years of war between north and southern Sudan resulted in



**Chronic food insecurity compounds the misery of death, displacement and disability – the legacy of 20 years of civil war in Sudan**

the deaths of 2 million people and the displacement of a further 4 million, causing widespread hunger across the country.<sup>16</sup> Today, chronic food insecurity persists across southern and eastern states.

In a country where 8.8 million people are classified as undernourished, the volatile security situation means that millions of people lack access to food, and fields in many areas cannot be harvested in the wake of enormous displacement.<sup>17</sup>

The 2011 referendum in the south, in which an overwhelming number voted for independence from the north, saw further population movement.

With an estimated 400,000 people returning home to the badly underdeveloped south by February and aid agencies anticipating that as many as 800,000 people will return by the end of the year, there is a massive strain on the infant country's already stretched resources.<sup>18</sup>

Alongside the inter-tribal clashes taking place, and conflict between armed groups, must be added the violence of the LRA, which established an initial base in the south of the country in 1993 and has recently become more active.

As many as 600,000 people have been internally displaced in the south by violence, including that of the LRA, over the past 18 months, the United Nations High Commissioner for Refugees (UNHCR) estimates.<sup>19</sup> Flows of people from the DRC fleeing LRA attacks have also had an impact on food resources, with nearly 20,000 Congolese forced to seek refuge in Sudan and neighbouring CAR since December 2008.<sup>20</sup>

**Christian Aid partner Mundri Relief and Development Association (MRDA) has supported more than 1,000 internally displaced persons in Western Equatoria State, during the past few years.**

## Central African Republic

As one of the poorest, most marginalised countries in the world, CAR, with a population of nearly 5 million, has been destabilised by violence for years. There have been four coups in the past decade, as well as regular clashes between government forces and armed bandits.

Now it also has the LRA to contend with. Following the 2008 attack on the group by Ugandan forces, some of its members fled to CAR, where they have been able to take full advantage of weak government security and the withdrawal in 2010 of the UN Mission in CAR and Chad.

At least 20,000 people were

displaced by the militia during the first three months of 2010, and 304 children and adults were reportedly kidnapped over the course of the year ending August 2010.<sup>21</sup> A further series of attacks took place in December 2010, according to the Geneva-based Small Arms Survey.<sup>22</sup>

The World Food Programme paints a particularly bleak picture of conditions in the country: 'Repeated political and economic crises... have devastated the country and have resulted in an overall deterioration of living conditions. The country lacks basic services, and hospitals have only the most rudimentary equipment and medicine,' says its country report.

'The scarcity of food resources lies at the heart of this vicious poverty cycle. Though the country's potential agricultural output is more than adequate to feed the entire population, the incessant burning of villages, agricultural fields and food storehouses by armed groups has terrorized local farmers to the point where agricultural production is very limited.'<sup>23</sup>



Spencer Platt/Getty Images

**Child malnutrition – one of the tragic consequences of armed conflict in countries such as Democratic Republic of Congo**

## Case study

### Afghanistan

## Thirty years of conflict leave millions without food

Once an important regional exporter of fresh fruit, Afghanistan is today beset by regular shortages of food, among a multitude of other problems.

The fact that 70 per cent of the country is mountainous has always been an obstacle to intensive farming. The altitude and low temperatures of many areas also restricts what can be grown.<sup>1</sup>

But it is 30 years of conflict that have had a truly ruinous impact on the ability of the country to feed itself.

The fighting has so far cost more than 1.5 million lives and at one stage caused more than 5 million refugees to seek safety in neighbouring countries. The subsequent return of large numbers has placed an added strain on resources.<sup>2</sup>

At the height of the conflict during the Soviet occupation of 1979-89, villages were destroyed, fields mined, wells poisoned and orchards razed. Roads, bridges and irrigation systems also fell into disrepair, or were damaged in the fighting.

Today's conflict between NATO forces and the Taliban, although just as deadly for those caught up in it, is not as intense. Nonetheless, the £1.4m in compensation claims settled by the UK's Ministry of Defence last year included money paid for people killed in the crossfire while guarding livestock and/or working in fields.

There were also numerous payments to compensate for crops destroyed during routine patrolling in areas without roads, trees cut down for security, and for farmers forbidden to grow tall crops for the same reason.<sup>3</sup>

The Western intervention in Afghanistan following the attack on the World Trade Center on 11 September 2001 has resulted in billions of dollars in aid (more than US\$25bn between 2002 and 2009)



**A woman bringing in the wheat in Afghanistan. Mountains, minefields and low temperatures restrict areas that can farmed**

flowing into the country.<sup>4</sup> But many official aid agencies have neglected agriculture during this period, despite its obvious importance for the overall economy and poverty reduction.

Some of the development challenges facing Afghanistan were outlined in a 2003 report by the UN Environmental Programme: 'Apart from the conflict, environmental degradation has been an important force driving people to find a better future elsewhere.'

'The lack of water resources has led to the collapse of many livelihoods, and most of the country is subject to an alarming degree of land degradation. [It] has also been robbed of its precious forest resources by Afghan and non-Afghan timber mafia and smugglers. The net result of the degradation is widespread desertification and

erosion, and increased vulnerability to environmental disasters.'<sup>5</sup>

A further problem not mentioned was the number of landmines planted during hostilities. British charity the HaloTrust says Afghanistan was one of the most mined countries in the world.<sup>6</sup>

Despite the influx of aid, in a country where 80 per cent of the population depends on agriculture and animal husbandry,<sup>7</sup> millions today still live in severe poverty with a crumbling infrastructure and a badly degraded environment.<sup>8</sup>

After years of drought and poor harvests, a 2007-2008 National Risk and Vulnerability Assessment found that 7.4 million people – or one-quarter of the population – were unable to get enough food to live active, healthy lives.<sup>9</sup>

Another 8.5 million were on





**A farmer in Afghanistan. The UN estimates that, in 2011, 7.8 million people will need food aid**

the borderline of being unable to ensure they had enough food to eat. Worst-hit areas at present are the centre, eastern (north and south) and southern regions where security remains a major concern.

Food shortages are one of the factors that today mean life expectancy is 44.5 years for men and just 44 for women. The infant mortality rate is high and the country also suffers one of the highest levels of maternal mortality in the world – 1,600 deaths per 100,000 live births.<sup>10</sup>

Deteriorating security since 2006 has prevented humanitarian workers from being able to reach more than half the country. With rising numbers of civilians caught up in conflict once more, the United Nations High Commissioner for Refugees has warned that further displacement is likely to continue, mostly towards urban areas.<sup>11</sup>

According to the United Nations Development Programme (UNDP), despite the problems Afghans face, they 'have been resourceful at maintaining a minimum level of calorie intake by relying on social networks, remittances, migration, and cultivation of drought-resistant cash crops [opium poppy] as a livelihood option.'<sup>12</sup>

However, malnutrition is a serious problem. 'Nearly 40 per cent of the children under three are moderately or severely underweight, and more than 50 per cent of children in that age group are moderately or severely stunted,' said the UNDP.

'There is little diversity in the Afghan diet [and] poor dietary diversity leads to micronutrient deficiencies and to poor nutrition outcomes.'

Rain in late January and early February this year averted a

threatened drought, but nonetheless the 2011 harvest is expected to be below normal,<sup>13</sup> and the UN has estimated that 7.8 million people this year will require food aid.<sup>14</sup>

Christian Aid partners provide support to rural communities and households. One partner, the Rehabilitation Association and Agricultural Development for Afghanistan (RAADA), has helped 50,000 people in 47 rural communities gain access to drinking water and agricultural training. It has also provided livestock and seeds. Another project supported by Christian Aid and the EC has given 1,310 women silkworms, as well as apple, mulberry and apricot trees, to help them earn a living.



## Case study

### Gaza

## The blockade bites

The Gaza Strip is a narrow piece of land bound by Egypt and Israel, 45km long and 5-12km wide.<sup>1</sup> Slightly smaller than the Isle of Wight, it is one of the most densely populated places on earth, with some 1.5 million people living there.<sup>2</sup>

It is also a place where many people struggle to afford food.

Some 80 per cent of the population is dependent on international aid,<sup>3</sup> with 52 per cent unable 'to grow or purchase the bare minimum amount of food for themselves and their families'.<sup>4</sup>

Of the 52 per cent deemed 'food insecure', 65 per cent of them are under 18 years old.<sup>5</sup> A further 13 per cent of the population are vulnerable to food shortages.<sup>6</sup>

Israel has restricted the movement of goods into the Strip for more than a decade.<sup>7</sup> The closure intensified in 2007, when Hamas, which had been elected into office the previous year, seized control.<sup>8</sup> Following the takeover, Israel declared Gaza a 'hostile territory'.<sup>9</sup>

Conditions rapidly deteriorated, and grew even worse after a 22-day Israeli military offensive – 'Operation Cast Lead' – that began in late December 2008. The Gaza authorities later reported 1,444 people had been killed while the Israelis put the figure at 1,166. Many were unarmed civilians.<sup>10</sup>

With the tightening of the blockade, smuggling tunnels under the Egyptian border to Gaza became a major conduit for getting supplies in, and are still in use.

Following an unsuccessful attempt to land supplies by sea last year – which was prevented by Israeli commandos, who killed nine people and wounded another 50 – Israel announced a series of measures to 'ease' restrictions.<sup>11</sup>

While this 'easing' has resulted in more food being allowed into Gaza,



**Gaza has fertile soil but the Israeli blockade and recent offensive have brought agriculture to its knees**

unemployment runs at 39 per cent, one of the highest rates in the world, which means the increased supplies bring scant solace to many who can't afford them.

Physicians for Human Rights Israel, in a recent report supported by Christian Aid called *Humanitarian Minimum*, says aid agencies are supplementing basic food supplies with vitamins and minerals to compensate for the fact that many families have reduced their consumption of fresh meat, fruits and vegetables.<sup>12</sup>

'Despite this, however, scientific studies have revealed that levels of malnutrition in Gaza are on the rise... Among other problems, wasting, stunting and high levels of anaemia are a cause for concern.'

The report adds: 'A major nutritional crisis is being avoided because of the vast quantities of aid distributed in Gaza by international agencies,

and the supplies entering the Strip through the tunnels from Egypt.'

Agriculture once played a significant part in Gaza's economy, providing jobs for up to 40 per cent of Palestinians in informal employment.<sup>13</sup>

But as of June 2009, a total of 46 per cent of agricultural land was assessed to be inaccessible or out of production, owing to destruction during the Israeli incursion and/or the extension of the 'buffer zone' Israel has imposed along the border that contains nearly a third of the Strip's arable land.<sup>14</sup>

Operation Cast Lead alone accounted for damage to 17 per cent of agricultural land due to bulldozing and chemical contamination.<sup>15</sup>

Extensions to the buffer zone, meanwhile, run from 150 metres to 2km in some places. Under the Oslo Accords, this military no-go area was supposed to be no wider

than 50 metres. In May 2009 the Israeli authorities declared the de facto expansion by dropping leaflets warning farmers not to approach within 300 metres of the border.<sup>16</sup>

The actual area where agricultural workers are in danger of attack, however, is up to 2km, so farmers and other civilians can never be sure exactly where it is safe for them to enter.

In the first six months after the incursion, almost no agricultural materials were allowed into Gaza, according to the FAO. Restricted items still include livestock, and various materials Israel claims could be used for military purposes, including concrete and iron bars for animal shelters.<sup>17</sup>

The FAO says Gaza has the potential to produce for export 2,300 tons of strawberries, 55 million carnation flowers and 714 tons of cherry tomatoes.<sup>18</sup> Some exports

have taken place since last year, but nothing of that magnitude.<sup>19</sup>

The restrictions on construction materials have also meant that it has not been possible to repair sewage facilities damaged by the Israeli attack, causing effluent to seep into the coastal aquifer. According to the World Health Organization, 90-95 per cent of the water is now unfit for human consumption.<sup>20</sup>

This is having an adverse impact on agriculture, and with 50-80 million litres of untreated and partially treated water being dumped into the sea every day, is also contaminating fish and other marine life, making them unfit for human consumption.<sup>21</sup>

The fishing industry has also been badly affected by Israel restricting its activities to a three-mile limit, greatly reducing catches.

Christian Aid partner the Palestinian Agricultural Relief Committees (PARC) helps farmers by providing saplings and seeds, as well as materials for repair of greenhouses and equipment. It has also provided 3,875 days of work to unemployed labourers. In addition, the Poor Farmers to Poor Families project improves the lives of both farmers and the unemployed through job creation and the rehabilitation of damaged agricultural lands. As part of this project, PARC provided 300 poor families with a food basket each – this in turn supported women's food-making cooperatives and poor farmers from whom they bought the produce.



**Gaza could grow and export 2,300 tons of strawberries a year, according to the UN's Food and Agriculture Organization. Only a fraction of that amount is now grown**

# ENDNOTES

- 1 *The State of Food Insecurity in the World 2010*, FAO and World Food Programme 2010, [fao.org/publications/sofi/en/](http://fao.org/publications/sofi/en/)
- 2 Ibid.
- 3 'Hunger stalks children in conflict-prone Yemen', Reuters, 26 January 2011, [trust.org/alertnet/news/interview-hunger-stalks-children-in-conflict-prone-yemen/](http://trust.org/alertnet/news/interview-hunger-stalks-children-in-conflict-prone-yemen/)
- 4 'WFP bolsters food and logistics support on Libyan borders', World Food Programme, [wfp.org/stories/wfp-bolsters-food-and-logistics-support-libyan-borders](http://wfp.org/stories/wfp-bolsters-food-and-logistics-support-libyan-borders)
- 5 Ellen Messer and Marc J Cohen, *Conflict, Food Insecurity, and Globalization*, International Food Policy Research Institute, May 2006, [ifpri.org/sites/default/files/publications/fcndp206.pdf](http://ifpri.org/sites/default/files/publications/fcndp206.pdf)
- 6 Ellen Messer and Marc J Cohen, *Breaking the Links Between Conflict and Hunger in Africa*, [ifpri.org/publication/breaking-links-between-conflict-and-hunger-africa](http://ifpri.org/publication/breaking-links-between-conflict-and-hunger-africa)
- 7 *Internal Displacement: Global Overview of Trends and Developments in 2010*, International Displacement Monitoring Centre and the Norwegian Refugee Council, [internal-displacement.org/publications/global-overview-2010.pdf](http://internal-displacement.org/publications/global-overview-2010.pdf)
- 8 Ibid.
- 9 Pierre Wilner Jeanty and Fred Hitzhusen, *Analyzing the Effects of Conflicts on Food Security in Developing Countries: An Instrumental Variable Panel Data Approach*, Department of Agricultural, Environmental and Development Economics, Ohio State University, 2006, [docstoc.com/docs/10238943/Analyzing-the-Effects-of-Conflicts-on-Food-Security-in-Developing-Countries-An-Instrumental-Variable-Panel-Data-Approach](http://docstoc.com/docs/10238943/Analyzing-the-Effects-of-Conflicts-on-Food-Security-in-Developing-Countries-An-Instrumental-Variable-Panel-Data-Approach)
- 10 *Linking Conflict and Development: A Challenge for the MDG Process*, Background Document, prepared by the Priority Areas for Interdisciplinary Actions – Disaster Prevention, Mitigation and Preparedness and Post-Emergency Relief and Rehabilitation (PAIA-REHAB), FAO 2005, [ftp://ftp.fao.org/docrep/fao/meeting/009/j5292e.pdf](http://ftp.fao.org/docrep/fao/meeting/009/j5292e.pdf)
- 11 *Armed Conflict and Hunger – How Conflict Causes Hunger*, Hunger Notes, World Hunger Education Service, [worldhunger.org/articles/fall2000/messer3.htm](http://worldhunger.org/articles/fall2000/messer3.htm)
- 12 'CIA opens center on climate change and national security', CIA, September 25, 2009, [cia.gov/news-information/press-releases-statements/center-on-climate-change-and-national-security.html](http://cia.gov/news-information/press-releases-statements/center-on-climate-change-and-national-security.html)
- 13 *Global Trends 2025. A Transformed World*, National Intelligence Council, [image.guardian.co.uk/sys-files/Guardian/documents/2008/11/20/GlobalTrends2025\\_FINAL.pdf](http://image.guardian.co.uk/sys-files/Guardian/documents/2008/11/20/GlobalTrends2025_FINAL.pdf)
- 14 World Food Programme, [wfp.org/countries/Afghanistan/Overview](http://wfp.org/countries/Afghanistan/Overview)
- 15 E Kemp and V Johnson, *Ghosts of Christmas Past: Protecting Civilians from the LRA (NGO)*, Joint NGO Briefing Paper, 14 December 2010, [oxfam.org.uk/resources/policy/conflict\\_disasters/downloads/bp-ghosts-christmas-past-LRA-141210.pdf](http://oxfam.org.uk/resources/policy/conflict_disasters/downloads/bp-ghosts-christmas-past-LRA-141210.pdf)
- 16 Ibid.
- 17 Ibid.
- 18 Marcelo Garcia, 'DRC: LRA violence makes humanitarian intervention more difficult', 7 March 2011, [intersos.org/en/content/drc-lra-violence-makes-humanitarian-intervention-more-difficult](http://intersos.org/en/content/drc-lra-violence-makes-humanitarian-intervention-more-difficult)
- 19 Project Ploughshares, *Armed Conflicts Report: Uganda*, January 2010, [ploughshares.ca/libraries/ACRText/ACR-Uganda.html](http://ploughshares.ca/libraries/ACRText/ACR-Uganda.html)
- 20 Internal Displacement Monitoring Centre, *Uganda: Difficulties Continue for Returnees and Remaining IDPs as Development Phase Begins*, 28 December 2010, [internal-displacement.org/countries/Uganda](http://internal-displacement.org/countries/Uganda)
- 21 FAO, *The State of Food Insecurity in the World 2010: Addressing Food Insecurity in Protracted Crises*, p15, 2010, [fao.org/docrep/013/i1683e/i1683e.pdf](http://fao.org/docrep/013/i1683e/i1683e.pdf)
- 22 Paskazia Tumwesigye, *Uganda: 32,000 Congolese Refugees to Return Home*, [allafrica.com, 1 November 2010, allafrica.com/stories/201011011355.html](http://allafrica.com/stories/201011011355.html)
- 23 See note 4.
- 24 See note 11.
- 25 UNHCR, *New LRA Attacks Against Populated Areas of Northeastern DRC*, UNHCR Briefing Notes, 1 March 2011, [unhcr.org/4d6ce0299.html](http://unhcr.org/4d6ce0299.html)
- 26 Katrina Manson, *Africa Awaits Birth of New Nation*, 7 January 2011, [ft.com/cms/s/0/6245af1e-1a89-11e0-b100-00144feab49a.html#ixzz1HzPjRFIjN](http://ft.com/cms/s/0/6245af1e-1a89-11e0-b100-00144feab49a.html#ixzz1HzPjRFIjN)
- 27 See note 11.
- 28 WFP, 'UN: South Sudan Returnees a Threat to Food Security, Hunger in the News', 12 January 2011, [wfp.org/news/hunger-in-the-news?page=30](http://wfp.org/news/hunger-in-the-news?page=30)
- 29 UN High Commissioner for Refugees, *Human Rights' Compilation Report – Universal Periodic Review: SUDAN*, November 2010, [internal-displacement.org/8025708F004CE90B/\(httpDocuments\)/1EFB82F4CC40B4D6C12577E6003B3593/\\$file/UNHCR+Oct+2010\\_READ.pdf](http://internal-displacement.org/8025708F004CE90B/(httpDocuments)/1EFB82F4CC40B4D6C12577E6003B3593/$file/UNHCR+Oct+2010_READ.pdf)
- 30 UNHCR, 'Central African refugees at risk of LRA attacks', September 2010, [unhcr.org.uk/resources/monthly-updates/september-2010/central-african-refugees-at-risk-of-lra-attacks.html](http://unhcr.org.uk/resources/monthly-updates/september-2010/central-african-refugees-at-risk-of-lra-attacks.html)
- 31 See note 4.
- 32 *Sudan Human Security Baseline Assessment (HSBA)*, Small Arms Survey (Geneva), March 2011, [smallarmssurveysudan.org/pdfs/facts-figures/armed-groups/southern-sudan/HSBA-Armed-Groups-LRA.pdf](http://smallarmssurveysudan.org/pdfs/facts-figures/armed-groups/southern-sudan/HSBA-Armed-Groups-LRA.pdf)
- 33 World Food Programme, [wfp.org/countries/central-african-republic](http://wfp.org/countries/central-african-republic)

## Central and Eastern Africa

- 1 'Alice Lakwena', *Daily Telegraph*, 20 January 2007, [telegraph.co.uk/news/obituaries/1539967/Alice-Lakwena.html](http://telegraph.co.uk/news/obituaries/1539967/Alice-Lakwena.html)
- 2 *Warrant of Arrest for Joseph Kony*, International Criminal Court, 27 September 2005, [icc-cpi.int/iccdocs/doc/doc97185.PDF](http://icc-cpi.int/iccdocs/doc/doc97185.PDF)
- 3 Mike Thompson, 'Who can stop the LRA?', *BBC Today Programme*, 16 February 2011, [news.bbc.co.uk/1/hi/today/newsid\\_9397000/9397111.stm](http://news.bbc.co.uk/1/hi/today/newsid_9397000/9397111.stm)



## Afghanistan

- 1 USAID, 'Food security framework, underlying factors', [fews.net/ml/en/info/Pages/fmwkfactores.aspx?gb=af&l=en&fmwk=factor](http://fews.net/ml/en/info/Pages/fmwkfactores.aspx?gb=af&l=en&fmwk=factor)
- 2 *Armed Conflicts Report: Afghanistan (1978-first combat deaths)*, Project Ploughshares, January 2010, [ploughshares.ca/libraries/ACRText/ACR-Afghanistan.html](http://ploughshares.ca/libraries/ACRText/ACR-Afghanistan.html)
- 3 'Afghanistan civilian compensation: the sums received from UK forces', *The Guardian*, 28 March 2011, [guardian.co.uk/world/datablog/2011/mar/28/afghanistan-civilian-compensation?INTCMP=SRCH](http://guardian.co.uk/world/datablog/2011/mar/28/afghanistan-civilian-compensation?INTCMP=SRCH)
- 4 *Afghanistan. Tracking Major Resource Flows 2002-2010*, Global Humanitarian Assistance, 2011, [globalhumanitarianassistance.org/wp-content/uploads/2011/02/gha-Afghanistan-2011-major-resource-flows.pdf](http://globalhumanitarianassistance.org/wp-content/uploads/2011/02/gha-Afghanistan-2011-major-resource-flows.pdf)
- 5 *Post-Conflict Environmental Assessment, Afghanistan*, United Nations Environment Programme, 2003, [unep.org/pdf/afghanistanpcajanuary2003.pdf](http://unep.org/pdf/afghanistanpcajanuary2003.pdf)
- 6 The Halo Trust, 'Afghanistan', [halotrust.org/operational\\_areas/central\\_asia/afghanistan/problem.aspx](http://halotrust.org/operational_areas/central_asia/afghanistan/problem.aspx)
- 7 'Afghanistan set to become self-sufficient in wheat production', United Nations Assistance Mission in Afghanistan, 4 May 2009, [unama.unmissions.org/Default.aspx?ctl=Details&tabid=1741&mid=1882&ItemID=3681](http://unama.unmissions.org/Default.aspx?ctl=Details&tabid=1741&mid=1882&ItemID=3681)
- 8 World Food Programme, 'Country information, Afghanistan', [wfp.org/countries/Afghanistan/Overview](http://wfp.org/countries/Afghanistan/Overview)
- 9 Ibid.
- 10 Ibid.
- 11 United Nations High Commissioner for Refugees, '2011 Regional Operations Profile – South-West Asia', [unhcr.org/pages/49e45af26.html](http://unhcr.org/pages/49e45af26.html)
- 12 UNDP, 'Millennium Development Goals in Afghanistan', [undp.org.af/MDGs/goal1.htm](http://undp.org.af/MDGs/goal1.htm)
- 13 USAID, 'Afghanistan food security alert', 20 January 2011, [fews.net/docs/Publications/AF\\_alert\\_2011\\_01.pdf](http://fews.net/docs/Publications/AF_alert_2011_01.pdf)
- 14 See note 4.

## Gaza

- 1 *Losing Ground: Israel, Poverty and the Palestinians*, Christian Aid, 2003, [christianaid.org.uk/Images/losing\\_ground\\_2003.pdf](http://christianaid.org.uk/Images/losing_ground_2003.pdf)
- 2 *Easing the Blockade, Assessing the Humanitarian Impact on the Population of the Gaza Strip*, OCHA, March 2011, [ochaopt.org/documents/ocha\\_opt\\_special\\_easing\\_the\\_blockade\\_2011\\_03\\_english.pdf](http://ochaopt.org/documents/ocha_opt_special_easing_the_blockade_2011_03_english.pdf)
- 3 *Dashed Hopes, Continuation of the Gaza Blockade*, Christian Aid et al, November 2010, [christianaid.org.uk/Images/DashedHopesGazaNov2010.PDF](http://christianaid.org.uk/Images/DashedHopesGazaNov2010.PDF)
- 4 See note 2.
- 5 *Farming without Land, Fishing without Water: Gaza Agriculture Sector Struggles to Survive*, FAO, 2010, [ochaopt.org/documents/gaza\\_agriculture\\_25\\_05\\_2010\\_fact\\_sheet\\_english.pdf](http://ochaopt.org/documents/gaza_agriculture_25_05_2010_fact_sheet_english.pdf)
- 6 See note 2.
- 7 See note 3.
- 8 See note 3.
- 9 'Cabinet declares Gaza "hostile territory"', Haaretz, 20 September 2007, [haaretz.com/print-edition/news/cabinet-declares-gaza-hostile-territory-1.229665](http://haaretz.com/print-edition/news/cabinet-declares-gaza-hostile-territory-1.229665)
- 10 *Report of the United Nations Fact-Finding Mission on the Gaza Conflict*, UN, 25 September 2009, [www2.ohchr.org/english/bodies/hrcouncil/docs/12session/A-HRC-12-48.pdf](http://www2.ohchr.org/english/bodies/hrcouncil/docs/12session/A-HRC-12-48.pdf)
- 11 *Report of the International Fact-finding Mission to Investigate Violations of International Law, Including International Humanitarian and Human Rights Law, Resulting from the Israeli Attacks on the Flotilla of Ships Carrying Humanitarian Assistance*, UN Human Rights Council, 27 September 2010, [www2.ohchr.org/english/bodies/hrcouncil/docs/15session/A.HRC.15.21\\_en.pdf](http://www2.ohchr.org/english/bodies/hrcouncil/docs/15session/A.HRC.15.21_en.pdf)
- 12 *Humanitarian Minimum: Israel's Role in Creating Food and Water Insecurity in the Gaza Strip*, Physicians for Human Rights Israel report, December 2010, [phr.org.il/uploaded/Humanitarian%20Minimum\\_eng\\_webver\\_S-%209.2.11.pdf](http://phr.org.il/uploaded/Humanitarian%20Minimum_eng_webver_S-%209.2.11.pdf)
- 13 *The Impact of Closure and High Food Prices on Performance of Imported Staple Foods and Vegetable and Fruits Market in the oPt December 2009*, World Food Programme, [home.wfp.org/stellent/groups/public/documents/ena/wfp215100.pdf](http://home.wfp.org/stellent/groups/public/documents/ena/wfp215100.pdf)
- 14 See note 5.
- 15 See note 5.
- 16 See note 12.
- 17 See note 5.
- 18 See note 5.
- 19 See note 12.
- 20 See note 12.
- 21 See note 12.



# LAND THE NEW LAND GRABS

The international buy-up of the developing world



Soaring food prices have led to huge interest from foreign investors in land in developing countries for growing crops

It has been called ‘the global enclosures movement’, the ‘land grab’, the ‘land rush’ and, simply, ‘neo-colonialism’.

However it’s described, the large-scale acquisition by foreign interests of agricultural land in developing countries is a growing global phenomenon.

In theory, the wave of investment could benefit people living in poverty by providing infrastructure and jobs. But from the evidence of what has happened so far, their interests count for little.

As governments quietly allow control of vast tracts of land to pass into powerful and wealthy hands, sometimes for the next 100 years, existing inhabitants are all too often forced out, and environmental concerns ignored.

In many cases, a ‘Wild-West’ scenario prevails, with investors eagerly exploiting the inability of under-resourced governments to control effectively what happens within their borders.

The land rights of very poor people, based often on the customs and practices of past generations rather than papers filed in a deeds office, appear to be of little consequence in the eyes of governments swayed by short-term financial gain or the promise of investment and perhaps jobs.

The World Bank recently concluded that countries that fail to protect the poor are being specifically targeted for investment by foreign interests.

‘The focus of investor interest on countries with weak land governance increases the risk that investors acquire the land essentially for free and in neglect of local rights, with potentially far-reaching negative consequences,’ the Bank warns in a recent study, *Rising Global Interest in Farmland*.<sup>1</sup>

The finding is unsurprising, given the massive power imbalance between the foreign investors – wealthy governments and multinational corporations – and people living in poverty in rural areas of Africa, Asia and Latin America.

There has been some resistance. An attempt by the South Korean company Daewoo Logistics to lease 1.3 million hectares – an area half the size of Belgium – for maize and palm oil in Madagascar, for instance, helped contribute in 2009 to the overthrow of the country’s government.<sup>2</sup>

And in Indonesia, protestors are said to have forced the Saudi Binladin Group to put on hold its planned US\$4.3bn project to grow rice on 500,000 hectares.<sup>3</sup>

But all too often, the communities worst affected are no match for their own governments, which have on occasion shown their willingness to dispatch the police and army to evict people from their property and break up protests.

Determining the exact scale and nature of land grabs worldwide is no easy matter, given the secrecy that surrounds many such deals, and the haste with which they are carried out.

Even the World Bank researchers who produced the Bank’s recent report found that ‘access to information emerged as much more of a problem than anticipated’.

They describe ‘an astonishing lack of awareness of what is happening on the ground, even by the public sector institutions mandated to control this phenomenon. This lack or dispersion of information makes it difficult to exercise due diligence and to responsibly manage a valuable asset.’

## **“ The World Bank recently concluded that countries that fail to protect the poor are being specifically targeted for investment**

‘More importantly, it makes it easy to neglect local people’s rights and creates a lack of openness that can lead to bad governance and corruption and jeopardise investors’ tenure security.’<sup>4</sup>

In the end, the researchers had to turn to the NGO sector for help, obtaining information from a blog – farmlandgrab.org – run by GRAIN (Genetic Resources Action International), a Spanish-based agency that supports small farmers.<sup>5</sup>

The information came largely from a compilation of media reports about large-scale land acquisitions around the world and is, says the World Bank, ‘in line with’ those facts it could discover from more official channels.<sup>6</sup>

In the first three months of 2011 the blog recorded dozens of projects at various stages of development. They included:

- Saudi investors planning joint ventures to produce rice, corn, bananas and other foods on some 5,000 hectares in the troubled Mindanao region of the Philippines.<sup>7</sup>
- British firm Chayton Africa using 20,000 hectares of Zambian farmland to grow foods such as wheat, maize and soya.<sup>8</sup>
- The leasing of 3,000 hectares of forest in Ethiopia to Indian company Verdanta Harvests, which plans to grow tea on the land.<sup>9</sup>

# 36

million hectares – the area of land devoted to biofuel crops:  
1.2 times the size of Italy

- South African farmers' plans to grow maize on 80,000 hectares in Congo Brazzaville, initially for local consumption.<sup>10</sup>
- Indian company Chadha Agro Plc seeking 100,000 hectares of land in Ethiopia for a sugar plantation (and initially being granted 22,000).<sup>11</sup>
- Iranian plans to grow wheat and sugar in Sudan.<sup>12</sup>
- Abu Dhabi's acquisition of 30,000 hectares in Sudan to grow alfalfa for cattle feed.<sup>13</sup>

Although foreign countries, companies and individuals have been buying – or simply seizing – land in poor countries for centuries, the phenomenon has become a great deal more evident since food prices spiked in 2008.<sup>14</sup>

The surging prices triggered riots around the world and helped push the number of hungry people to nearly one billion, according to the FAO.<sup>15</sup>

That in turn prompted the governments of a number of countries that depend heavily on imported food, have fast-growing populations, or are affected by both factors, to try to insulate themselves from future price rises.

Countries such as the Gulf States, South Korea, Libya, India and China embarked on efforts to secure land in other countries, on which to grow their own supplies.<sup>16</sup>

Those supplies could be used as insurance against ruined harvests at home and high global food prices, or as investments in themselves, with the produce sold on the open market.

Agribusiness and investment companies have followed suit, accelerating a trend that has seen the value of foreign direct investment in agriculture rise from US\$600m a year in the 1990s to a yearly average of US\$3bn in 2005-2007.<sup>17</sup>

For such investors, the potential pay-out is paramount. As GTZ, now called GIZ, a company owned by Germany's development ministry, put it: '...the global financial crisis has led to a collapse in equity and bond markets, and thereby strengthening indirectly the competitiveness of FDI [foreign direct investment] in land.'<sup>18</sup>

Domestic investors – individuals and companies – in developing countries are also part of the land-grab picture. Official inventories of who is buying land suggest that they account for a significant proportion of all buyers – perhaps the majority – although as the World Bank points out, they may be acting as fronts for foreign buyers.<sup>19</sup>

## Fuelling the land grabs

Concerns about food prices and food supplies tell only part of the land-grab story. Another factor leading to massive land purchases is an explosion in the demand for biofuels.

Other pressures on land include population growth, expanding cities, emerging middle classes' demand for meat, land degradation, and developments such as mines, dams and tourist resorts.

Plans to use forests as carbon 'sinks' to combat climate change are also starting to have an impact and could harm people living in poverty if effective safeguards are not adopted. The same risk applies to efforts by the World Bank among others to include soil as a 'sink'.

The risk is that the financial incentives available to governments – for instance via the UN's Reducing Emissions from Deforestation and Degradation (REDD) programme – could encourage them to prohibit existing use of such resources by poor people such as forest dwellers.

Past privatisation policies promoted by the World Bank are also blamed by some experts for setting the scene for the land grabs now under way.<sup>20</sup> The Bank's own research reveals that so far, private investment has done more harm than good, with case studies showing it has contributed to the loss of livelihoods.

'Problems have included displacement of local people from their land without proper compensation, land being given away well below its potential value [and] approval of projects that were only feasible because of additional subsidies, [or] generation of negative environmental or social externalities...'<sup>21</sup>

World Bank figures show how the demand for land to grow biofuels is increasing. It estimates that between 2004 and 2008, the total amount of land devoted to biofuel crops such as maize and sugarcane, for instance, doubled to 36 million hectares.<sup>22</sup> This is considerably bigger than the size of Italy, which is roughly 30 million hectares.

The boom was caused by governments – including the UK and US – and the EU subsidising biofuel production to the tune of billions of dollars. Much of the crop went into producing the fuel ethanol, which supporters present as more climate-friendly than petrol because of its lower carbon emissions. The US is also keen to reduce its dependence on Middle Eastern oil.

Global production of ethanol, which is produced in much greater volume than any other biofuel, has more than doubled in recent years, rising, according to the Global Renewable Fuels Alliance, from 39 billion litres in 2006 to a forecast 89 billion in 2011.

As many organisations, including Christian Aid, have



# 3.5%

The share of foreign aid devoted to agriculture in 2004 – an all-time low



**Palm oil processing in Colombia. Demand for biofuels is exacerbating the land grab trend. Worldwide an area larger than Italy was under biofuel production by 2008**

highlighted, this rush to biofuels has in some cases had horrendous consequences for people living in poverty who have been forcibly evicted to make way for plantations.<sup>23</sup>

Christian Aid's 2009 report *Growing Pains: the Possibilities and Problems of Biofuels* mentioned how farming communities in the Chocó region of Colombia, for instance, were violently displaced from their land in 1997 by the Colombian military and paramilitary groups. After they were forced out, the area was used to grow palm oil, which can be used to make biodiesel.<sup>24</sup> As reported in the chapter on conflict (see p26), similar evictions are still taking place.

Through its partner organisations, Christian Aid has seen the impact of both biofuel and other forms of agribusiness on the poor. The organisation's Senior Advocacy Officer for Economic Justice, Claire Kumar, says: 'Certainly the impression we have from our partners is that there is a vast expansion of agro-export in Latin America.

'In countries such as Brazil, Argentina and Bolivia, land is increasingly being taken over by large companies engaged in monoculture of soy, palm oil or rice.

'In many locations throughout South America, these are well-established trends. However, it is spreading throughout the region and much less is

being said about similar land acquisitions happening very quietly in Central America. There, it is often big national companies owned by local elites which are greatly increasing their plantations of sugarcane and palm oil.'

A range of concerns has emerged. One major issue is that poor families who could at least depend on their land to grow food are now landless and their long-term ability to provide enough food to feed themselves is in serious jeopardy. Dependent on the market for food, they are more exposed than ever to food-price rises.

Their only hope for a job, meanwhile, is to work for the new owners of the land they once occupied – in a sector notorious for its low wages, extremely poor conditions and lack of basic employment rights.

This is likely to mean a dramatic fall in their incomes, the World Bank suggests. In a section about the potential for smallholders and large farms to coexist, it states: 'Smallholders' income is two to ten times what they could obtain from wage employment only.'<sup>25</sup>

Another potential problem for plantation workers is working conditions, which in some cases in Latin America and the Caribbean have been found to be appalling.

'Latin America is already the most unequal region in the world,' says Kumar. 'How can increasing the concentration of land and wealth serve its long-term development goals? Is this really the best way forward?'

Importantly, in a world where fresh water is becoming increasingly precious, acquiring control of another country's agricultural land means also acquiring part of its water resource – sometimes at the expense of local people.

However, major foreign investment in agriculture could undoubtedly bring benefits. Developing countries badly need such cash infusions, and successful enterprises could also be a source of badly needed tax revenues.

The money could at least pay a part of the US\$30bn additional funds the FAO says are needed annually if the world is to meet the first of the MDGs in halving the number of hungry by 2015.<sup>26</sup>

The share of foreign aid devoted to agriculture has fallen from a peak of 17 per cent in 1979 to a low of 3.5 per cent in 2004,<sup>27</sup> with the FAO warning: 'The question is not *whether* international investments should provide a supplement to other capital inflows, but *how* their impact can be optimized.'<sup>28</sup>

Similarly, the UN's Special Rapporteur on the Right to Food, De Schutter, points out that the critical question is not whether poor countries need investment in agriculture but, rather, what form that



investment should take, for whose benefit, and what impact it will have on rural poverty and development.

'Small farmers in developing countries need infrastructure such as roads and storage facilities. They need better access to credit. They need to be able to form cooperatives and to improve their bargaining position in markets with better information about prices,' he says.

'Whether it is domestic or foreign, whether it is public or private, investment can help this to happen. However, what small farmers definitely do not need is investors acquiring from governments the land on which they rely for their livelihoods, robbing them of the single most important asset that they have.

'Ignoring this reality could have very serious consequences. Landlessness or quasi-landlessness is systematically correlated with under-nutrition in developing countries, because land is an essential safety net for those who have nothing to fall back upon in hard times. *They simply have nothing else.*'<sup>29</sup>

Christian Aid regards poverty as essentially a lack of power over one's life and prospects caused by the choices and policies of others. Developments that threaten to undermine further the already precarious situation of people living in poverty are therefore of huge concern.

### Land investment: the big picture

Telephone-number-style figures are everywhere in the land-grab story, because of the large amounts of money and huge tracts of land involved. In late March 2011, for instance, Bloomberg reported plans by Saudi Star Agricultural Development plc to invest US\$2.5bn by 2020 in rice farming in Ethiopia.

The company 'leased 10,000 hectares in Ethiopia's western Gambella region for 60 years at a cost of 158 birr (US\$9.42) per hectare annually, Chief Executive Officer Haile Assegide said in an interview on March 18,' reported Bloomberg. It also 'plans to rent an additional 290,000 hectares from the government'.<sup>30</sup>

In another example of a very large-scale investment, Malaysian palm oil giant Sime Darby was reported earlier this year to have secured a US\$23m deal that gives it a 63-year lease on 222,000 hectares of land in Liberia.<sup>31</sup>

Even before the food price rises of 2008, the total amount of cultivated land in developing countries was expanding by around 5 million hectares a year because of rising demand for food, feed, pulp and biofuels.<sup>32</sup>

The World Bank estimates that as a result of future population growth, rising incomes, urbanisation and government policy-driven demand for biofuels and

forest plantations, the total amount of agricultural land in the world will continue to expand, rising to a rate of at least 6 million hectares a year and possibly double that.

For comparison, 6 million hectares is one-quarter of the size of the UK, the total area of which is 24 million hectares.<sup>33</sup>

Some two-thirds of the expansion is likely to occur in Latin America and the Caribbean, and sub-Saharan Africa.<sup>34</sup>

The 2008 commodity price boom had a dramatic effect on demand for agricultural land. In that one year alone, foreign investors expressed an interest in 56.6 million hectares of land around the globe.<sup>35</sup>

**“ Of the 56.6 million hectares in which investors expressed interest, two-thirds were in sub-Saharan Africa**

This is more than 10 per cent of the total amount of land (446 million hectares) that the World Bank calculates is currently uncultivated but suitable for rainfed cultivation globally. If land more than six hours' journey from market is excluded from the global total, then the 56.6 million hectares become more than a quarter of the total amount of land that is suitable for cultivation.<sup>36</sup>

Of the 56.6 million hectares in which investors expressed interest, two-thirds (almost 40 million hectares) were in sub-Saharan Africa, followed by east and south Asia (8.3 million), Europe and Central Asia (4.3 million) and Latin America and the Caribbean (3.2 million).<sup>37</sup>

Within sub-Saharan Africa, investors' interest focused on Ethiopia, Ghana and Mozambique, Nigeria, and Sudan, which together accounted for almost a quarter of the desired land worldwide.

The amounts of land involved in these investments vary widely – although the median amount is 40,000 hectares, more than one quarter of projects involve more than 200,000 hectares.

In one country alone, Sudan, from 2004 to 2009, nearly 4 million hectares were transferred to private investors – an area larger than Rwanda.<sup>38</sup>

When the World Bank analysed the crops planned for the 405 projects worldwide for which data was available, it found that 37 per cent were intended to



**A pastoralist family in Kenya – land grabs threaten the livelihoods of pastoralists and indigenous people worldwide**

grow food, while 21 per cent were for industrial or cash crops, 21 per cent were for biofuels and the rest involved conservation and game reserves, livestock and forestry plantations.

However, most of the planned investments had either not got to the stage of acquiring land or had not used it as intended. Only 21 per cent of projects had actually started farming.

This may indicate, the World Bank suggests, that investors are buying more land than they can initially use, in order to eliminate competition and take advantage of favourable terms. It warns this is risky for poor countries, especially where investors are inexperienced, land values are expected to rise and there is no effective way of taxing land holdings.<sup>39</sup>

### **The 'empty' land myth and other dangers for minorities and women**

Perhaps the most worrying aspect of the land grab underway is the fact that land lying uncultivated is far from necessarily 'empty' or uninhabited.

Three-quarters of the world's poor live in rural areas and most of them depend on farming.<sup>40</sup>

Land that governments and potential investors may regard as empty or suitable for sale is in many cases home to landless farm workers, pastoralists, indigenous people, and those who have been

displaced from their normal homes by conflict.

As the World Bank noted of the 56 million hectares that excited investor interest between 2008 and 2009: 'Very little, if any, of this land will be free from existing claims that will have to be recognised by any potential investment, even if they are not formalised.'<sup>41</sup>

The situations of minorities such as indigenous peoples and pastoralists, who move from place to place according to where there is food for their grazing animals, are, if anything, even more precarious than those of subsistence farmers. They are often politically weaker than the dominant communities in their countries and their poverty tends to be more extreme.

Such groups were sometimes deliberately excluded from consultations, the Bank concluded, following more detailed research about land grabs in selected countries around the world.

'Vulnerable groups such as pastoralists and internally displaced people were excluded from consultations in an effort to override or negate their claims. Without proper safeguards, they became aware of pending land use changes too late to be able to voice concerns,' it said.<sup>42</sup>

The same was often found to be true of women. 'Many of the projects studied had strong negative gender effects, either by directly affecting women's land-based livelihoods or, where common property resources were involved, by increasing the time

## “ Land titling usually benefits those in power and men... Given inequitable laws and practices denying wives joint ownership of family land, women often lose out in this process

Internal Displacement Monitoring Centre

required of women to gather water or firewood and take care of household food security.

‘In many cases, it was presumed that land rights were in the name of men only, leaving women without a voice. Bargaining power in the household was affected in unpredictable ways.’<sup>43</sup>

Lorenzo Cotula, from the UK’s International Institute for Environment and Development (IIED), an authority on the land grabs issue, points to Africa to illustrate the widespread misconception that large areas of fertile land are empty.

‘The few global studies on land suitability and availability tend to be based on statistics and satellite imagery dating back to the 1990s,’ he says. There are concerns that these studies seriously underestimate the areas used by shifting cultivation and pastoralism.

‘So healthy scepticism is needed when claims are made about how much land really is “free” in Africa,’ he says. ‘In practice, most cultivable land is likely to be already used to varying degrees of intensity, or at least claimed by local farmers, herders and gatherers. But the land rights of these people often have no proper legal recognition.’<sup>44</sup>

One solution, the World Bank maintains, is to document people’s land rights as a way of reducing the potential for conflict over who owns what. However, other experts warn that giving individuals and communities formal titles to land is a double-edged sword.

‘Land titling usually benefits those in power and men,’ warns the Internal Displacement Monitoring Centre, an organisation that tracks conflict-induced displacement of people around the world. ‘Given inequitable laws and practices denying wives joint ownership of family land, women often lose out in this process.’<sup>45</sup>

Barbara McCallin, the centre’s adviser on housing, land and property issues, says: ‘Communities are very vulnerable to land grabs if they have informal land tenure. The solution can be a very carefully managed communal land titling process which involves everyone. But even this can be very hard on people who are excluded by the dominant community. There is no one-size-fits-all solution – you have to be very careful.’<sup>46</sup>

One alternative, she says, is reinforcement of communities’ customary land rights, which are those based on a community’s traditional use of an area. An example of a project supporting such reinforcement is the Community Land Titling Initiative by the International Development Law Organization (IDLO). It is working across 60 separate communities in Uganda, Liberia and Mozambique, studying how the communities fare with various different levels of legal help with acquiring communal titles to their land.<sup>47</sup>

Such rights are not well described in international law, adds McCallin, but last year they were upheld in an important decision by the African Commission on Human and Peoples’ Rights. The case involved the 1970s eviction of the Endorois people from their traditional lands in central Kenya, where they had lived a pastoral way of life.<sup>48</sup> They had also been granted only sporadic access to sites that were central to their spiritual beliefs. The Commission recommendations included that their land be restored to them, that they be compensated and that their land rights be recognised.

UN Special Rapporteur De Schutter takes a similar view. ‘Rather than focusing on strengthening the rights of landowners, states should encourage communal ownership systems, strengthen customary land tenure systems and reinforce tenancy laws to improve the protection of land-users,’ he said recently.<sup>49</sup>

### Land investment: what happens at ground level?

Attempts to analyse the deals struck between developing country governments and land investors hit a series of obstacles familiar to anyone that has looked at the way the extractive industries, such as those involved in oil or gold, go about doing business in the developing world.

George Soros, the global financier and philanthropist, identified ‘asymmetric information’ as one of the key problems facing developing countries when disposing of their resources. It occurs when representatives of a multinational corporation or wealthy government arrive with a phalanx of lawyers, accountants and other experts to negotiate.

The government officials they will come up against will simply be unable to match their knowledge or experience, not least because anyone who could would usually be working for the private sector rather than the government.

This implies that governments selling land will have great difficulty negotiating (never mind monitoring and enforcing) deals that are fair to their citizens and environmentally sustainable.

The problem of asymmetric information also extends to the citizens of the country whose land is being sold and who will frequently have no idea about the negotiations taking place.

IIED recently examined 12 land deals in Africa.<sup>50</sup> While it found some encouraging examples – notably, contracts negotiated by the Liberian government – it also warns that several ‘appeared not to be fit for purpose: some are short, unspecific documents that

## “ Even where taxes are formally due, host governments may receive little in practice

grant enforceable, long-term rights to extensive areas of land and in some cases priority rights over water, in exchange for little public revenue and apparently vague and potentially unenforceable promises of investment and/or jobs.<sup>51</sup>

Deals that give investors leases of around 100 years are ‘common practice’ but will have profound effects on local people’s ways of life, the IIED also notes. ‘Such long durations mean that, where local people lose their land, they will be separated from it for several generations – enough to eradicate longstanding livelihood strategies and agricultural knowledge.’<sup>52</sup>

Several included tax exemptions for investors and, unlike mining deals, none included requirements for investors to pay royalties based on production value rather than profit, which make it ‘easier for the host government to calculate and collect’.<sup>53</sup> Alarming, too, the IIED points out that most of the deals ‘do not require independent audits and government oversight of the investor’s financial accounts and do not establish safeguards against transfer pricing [see the chapter on tax, p54] So even where taxes are formally due, host governments may receive little in practice.’

Today the extractive industries are coming under growing international pressure to reveal their payments to governments as a means of holding them and recipient governments accountable for

how ordinary people benefit from their dealings.

An example of this is America’s Dodd-Frank Act, whose provisions include a requirement for ‘extractive’ companies such as mining concerns to reveal their payments to governments on a project-by-project and country-by-country basis.

The IIED findings suggest that such demands must be extended urgently to multinational agribusiness companies.

**Christian Aid believes that all such transactions must benefit the existing land users, that alternative use of the land by smallholders must be considered, and where large farms are allowed, workers must be allowed to organise and should enjoy good wages and conditions.**

**In India, Christian Aid partner Ekta Parishad (a federation of some 11,000 community groups) works with marginalised people, including dalits, small farmers, farm labourers and tribal and nomadic communities, to improve their rights to land and livelihoods and provide them with a measure of food security.**

**In October 2012 it is organising a month-long march of 100,000 people in India to draw attention to the importance of land for poverty reduction and development.**



Smallholders in a number of African countries could find themselves driven off the land by foreign investors



## Case study

### Mali

A tale of two land grabs:  
how communities can lose – and win



Christian Aid/Sarah Filbey

**Onion farmer Sodougou Banou waters her crop. Smallholders in Mali have protested against the arrival of major foreign investors wanting to take over their land**

Mali is west Africa's largest country, stretching from the borders of the Cote d'Ivoire deep into the Sahara desert. As a result, most of it is sand. Of the 1.4 million hectares that are farmed, 90 per cent support subsistence farmers.<sup>1</sup>

Life for most of the inhabitants is hard. More than one in four children below the age of five are underweight, nearly one in five households face food shortages, and life expectancy is just 49.<sup>2</sup>

Despite the harshness of the terrain, there has apparently been no shortage of foreign investors wanting to take control of farm land.

Interest has focused on the precious, most fertile part of the country, the central Niger Office area, where crops can be irrigated using water from the Niger River before it starts its journey southwards.<sup>3</sup>

Saudi Arabian, South African, Chinese and American investors have expressed interest,<sup>4</sup> and

London-based company Lonrho has also been in talks with the Malian government.<sup>5</sup>

By far the biggest single foreign investor, however, is Libya. It is reported to have signed a 50-year lease with Mali, giving it use of 100,000 hectares of the Niger Office area (where it wants to grow rice),<sup>6</sup> while a Saudi Arabian company has reportedly shown interest in a further 200,000 hectares.<sup>7</sup>

There has been widespread criticism of the Malian government's willingness to countenance foreign investment. The problem is that the targeted areas are home to hundreds of thousands of people farming the land and grazing their livestock. Their customary rights to the land are not recognised by the Malian government.

Since water availability during the dry season is limited, only 250,000 hectares in the Niger Office area are irrigable. Therefore, it is feared that further demand will create conflict.<sup>8</sup>

Clashes have already occurred between Malibya (the local subsidiary of the Libya Africa Investment Portfolio), which is building roads and dams, and cattle breeders forced from their traditional routes and grazing areas.<sup>9</sup>

Opposition politicians claim that land has been given away 'almost for free' to investors while hundreds of families have been displaced. The government response is that the state does not have the resources needed to realise the area's agricultural potential.<sup>10</sup>

Farmers themselves have also protested, with the Collective of Farmer Organisations and the Coalition of the Forum of Civil Society Organisations issuing the Kolongo Appeal late last year.

The document describes 'flagrant violations of citizens' and human rights through numerous shocking attacks on the physical and moral integrity of rural populations in developed areas of the Office du

Niger’ and ‘sudden and brutal occupations of agricultural lands by foreign and national investors to the detriment of family farms’.

The farmers are demanding that work developing disputed land is frozen, and all transactions suspended until the conflicts have been resolved.

## “ Local varieties of rice are being displaced by newly developed varieties

All of this said, foreign observers have pointed out that actual ‘mass evictions have not occurred under the modern democratic state in Mali – in fact, one would have to look back to the colonial era to find examples of large numbers of people being forcibly evicted from their homes.’<sup>11</sup>

There is also concern, however, that biodiversity in the agricultural region is suffering. Dr Assetou Samaké, a professor of plant genetics at the University of Bamako, is reported to have warned that in the Niger Office area, the local varieties of rice are being displaced by newly developed varieties.<sup>12</sup>

She also fears that the area is becoming ‘a forest of experiments’, with a lack of transparency about what seeds are being brought in, and has expressed concern that it could become a testing ground for genetically modified and hybrid seeds.<sup>13</sup>

There is one particular foreign agricultural project in Mali, however, that gives a hint of what is possible when a foreign investor works with local farmers for the benefit of all.

It involves farmers supplementing their income with the oil-producing cash crop jatropha, without jeopardising food supplies.

The investor involved, Mali Biocarburant SA (MBSA), is a profit-making venture funded by private institutional investors in the Netherlands and subsidised by the Dutch government.

The Malian farmers (2,611 of them, as of 2009) devote 80 per cent of their land to producing food. They use the remaining 20 per cent to grow jatropha, which they sell to MBSA, which in turn extracts the oil to sell as fuel, thereby providing Mali with a source of energy.

As well as the purchase price for the crop, the farmers – who own a 20 per cent stake in the company through their union – also receive dividends and increases in the value of their shares.

The benefits of such a scheme include employment, preservation of biodiversity and resilience of the local communities to price and weather shocks.



Ripening jatropha, an oil-producing cash crop. A Mali project shows how big business and small farmers can work together to the benefit of both

## Case study

### Cambodia

#### Dealing with the legacy of Year Zero

Cambodia's present land-grabbing problems date back to 1975, deemed Year Zero by Pol Pot and the Khmer Rouge as they set about eradicating every vestige of the country's past – including records of land ownership.

Years of conflict both before and after that time have left what was once one of the wealthiest rice-producing countries in southeast Asia one of the poorest.

Today, 80 per cent of Cambodia's 13.8 million population live in rural areas, where most are completely dependent on subsistence agriculture, mainly rice farming and fisheries, for survival.<sup>1</sup>

More than a quarter of Cambodians (27 per cent) live below the poverty line and 18 per cent are considered to have limited or uncertain access to nutritious food.<sup>2</sup>

Malnutrition rates are high, with almost 40 per cent of children chronically malnourished, and micronutrient deficiencies – especially iron, Vitamin A and iodine – are common, particularly among children under five and pregnant and lactating women.<sup>3</sup>

In 2001 the government passed a law that was supposed to confer land ownership on anyone who had legally occupied land for five years.<sup>4</sup> That was followed up with further legislation establishing a legal framework for allocating land to the poor for residential and/or farming purposes.

However, with rising land values, and the slow process of the law, families, many of them farmers, are being forced out to free up land for foreign and domestic investors,



**Cambodian farmer Sorn Chhai and his family. More than a quarter of Cambodians live below the poverty line and most are completely dependent on subsistence agriculture, which in a number of areas is under threat**

with the legal system rarely protecting the interests of the poor.

Companies from countries such as Kuwait, Malaysia, South Korea, China and Australia have arrived to cultivate crops such as sugar cane and cassava, and timber such as acacia and pine.

In less than a decade, a quarter of a million people have been affected by land grabbing with thousands uprooted and installed in remote areas where jobs, schools and hospitals are few and far between, clean water and sanitation are lacking, and food supplies often inadequate.<sup>5</sup>

Reasons for the evictions have included the granting of Economic Land Concessions (ELCs), extractive industry licences and concessions, infrastructure development, 'city beautification' and private development, including tourist industry projects.

Christian Aid partner the Cambodian Human Rights and Development Association (Adhoc) said that last year alone there were more than 200 land-dispute cases, 23 of which involved the forced eviction of 12,389 families. In 14 cases, the land concessions for private companies amounted to more than 8,000 hectares.<sup>6</sup>

The armed forces were used on more than 20 occasions to disperse protesters.

Christian Aid is working in Cambodia with DanChurch Aid, a partner in the All Churches Together (ACT) Alliance, to help families develop diversified and more sustainable ways of farming. We also support a number of organisations helping poor households and communities to register land titles and solve land disputes.



## Land grab alternatives

### Making land deals work for small farmers

Some governments have now called a temporary halt to large-scale land investments in recognition that things have gone wrong.<sup>1</sup>

They have stipulated that future proposals must be assessed as part of a formal agricultural strategy, and are establishing processes to identify land that is potentially suitable, and to monitor what takes place.

As well as trying to curb some of the worst excesses of large-scale investors, ways of channelling their interest so it can actually benefit less well-off farmers are also being investigated.

The IIED, in a survey of business models for smallholders called *Making the Most of Agricultural Investment*, lists six alternatives to land grabs.<sup>2</sup>

- Contract farming, where farmers remain on their land and have supply agreements with buyers. In return, companies provide support, for instance in the form of credit, pesticides, fertilisers and technical advice (the cost of which may be deducted from later payments for produce), and also agree to buy the produce, usually for a specified price.
- Management and lease contracts, under which a farmer or management company works someone else's land on their behalf, often in return for a share of profits instead of a fixed fee.
- Joint ventures, which involve coownership, for instance by a company and a farmers' organisation sharing the financial risks, benefits and decision-making.
- Farmer-owned businesses such as cooperatives in which assets are pooled for conducting operations such as processing or marketing.



**A march on Delhi of the rural poor demanding land rights in 2007, organised by Christian Aid partner Ekta Parishad, led to the Indian government setting up a National Land Reform Commission**

- Business links between farmers and businesses such as those that process and/or market their crops.
- Tenant farming and sharecropping; the former involves the farmer paying the landowner a fixed rental fee and the latter involves the crop (or the proceeds of selling it) being split between farmer and landowner according to a pre-agreed percentage.

The potential benefits of such schemes include better access to credit, technology and technical advice about farming, improved access to markets, the security of an agreement that produce will be purchased at a particular price and a share in the investor's profits.

The IIED, which conducted the study on behalf of the FAO, says there was no one optimum

model – factors such as the status of people's land rights, the relevant laws, history, culture, the natural environment and the nature of the local community had all to be taken into account.

Results would depend on the company concerned, the host government, and smallholders' negotiating power, which in turn would be strongly shaped by the status of their land rights and access to crucial information such as their legal rights, market trends and how product prices, royalties and dividends were to be calculated.

It adds that development agencies, advocacy groups, and public-interest lawyers had an important role to play in supporting smallholders and tackling 'the power asymmetries' affecting their dealings with agribusiness, which has the best lawyers and negotiators at its disposal.<sup>3</sup>



For the devil is likely to be in the detail as to how the balance of ownership, decision-making power, risk and reward will be determined in each case.

‘For example, depending on its specific terms, contract farming may be a vehicle for providing support and improving market access for smallholders – or an exploitative relationship where smallholders are effectively providers of cheap labour and expected to carry production risks,’ the ILED warns.<sup>4</sup>

The World Bank also accepts that large-scale plantations are not the only commercially viable way for companies to invest in farmland, noting that smaller farms employing members of the owner’s family are likely to be more efficient than large-scale farms that employ waged labourers.<sup>5</sup>

The Bank has come up with seven ‘principles for responsible agro-investment’ to which it suggests all those involved in large-scale land deals should adhere, in order for them to ‘do no harm, be sustainable and contribute to development’.<sup>6</sup>

The principles themselves seem laudable – including as they do respect for land and resource rights, protection of food security, transparency over deals and the consultation with and participation of people affected by potential investments, to name a few.

Given the relative powerlessness of people living in poverty in many societies where land grabs are occurring, however, and the lack of any effective monitoring or enforcement mechanisms, the aspirations have a hollow ring.

Some observers go further and warn that the principles may be worse than merely ineffective. ‘Purely voluntary approaches



**Following the Ekta Parishad land rights march, legislation was enacted enabling every forest dweller to have a land title in his or her name**

are likely to be ineffectual, under contestation and, more profoundly, will legitimise and entrench the claims of external investors over those of poor local land-rights holders,’ notes a recent study of land-acquisitions in Africa.<sup>7</sup>

They may also be used to justify investments on the grounds that they are good for poor, rural areas. As the New York University-based Center for Human Rights and Global Justice puts it: ‘Potential infringements of human rights are (re)framed as side effects of an essentially beneficial cure – they are risks that can be managed in order to make possible a larger good.’<sup>8</sup>

Some observers – notably De Schutter – urge governments to consider more radical options. Although De Schutter has also put forward a set of ‘minimum principles’

for large-scale investment, based on international human-rights norms, he has gone as far as suggesting that land redistribution may be needed.<sup>9</sup>

‘Where land is under-utilised or considered vacant, the question of whether it should be redistributed to allow small independent farmers to use it or whether it should be developed into a large estate comes first, even before the question arises of whether a large-scale investment complies with a set of principles,’ he argues.

‘Numerous studies have shown that a more equitable distribution of land is desirable on both efficiency as well as equity grounds, with a particularly strong potential to drive economic growth, empower women and reduce rural poverty.’

# ENDNOTES

- 1 *Rising Global Interest in Farmland*, World Bank, 2011, [siteresources.worldbank.org/INTARD/Resources/ESW\\_Sept7\\_final\\_final.pdf](http://siteresources.worldbank.org/INTARD/Resources/ESW_Sept7_final_final.pdf)
- 2 'Madagascar leader axes land deal', BBC News, 19 March 2009, [news.bbc.co.uk/1/hi/world/africa/7952628.stm](http://news.bbc.co.uk/1/hi/world/africa/7952628.stm)
- 3 'Outsourcing's Third Wave', *The Economist*, 21 May 2009, [economist.com/node/13692889](http://economist.com/node/13692889)
- 4 See note 1.
- 5 [grain.org/about/?org](http://grain.org/about/?org)
- 6 See note 1.
- 7 'Gulf investors eye Philippines agro sector', *Emirates* 24/7, 5 March 2011, reproduced on [farmlandgrab.org: farmlandgrab.org/post/view/18262](http://farmlandgrab.org/post/view/18262)
- 8 'Zambia: rich African farms draw international investors', *TradeInvest Africa*, 2 March 2011, reproduced on [farmlandgrab.org: farmlandgrab.org/post/view/18238](http://farmlandgrab.org/post/view/18238)
- 9 'Ethiopian President concerned by lease of forest to Indian firm', *Bloomberg*, 4 February 2011, reproduced on [farmlandgrab.org: farmlandgrab.org/post/view/18137](http://farmlandgrab.org/post/view/18137)
- 10 'South African farmers ready to venture into the Congo', *How we made it in Africa*, 13 February 2011, reproduced on [farmlandgrab.org: farmlandgrab.org/post/view/18166](http://farmlandgrab.org/post/view/18166)
- 11 'Indian company given Oromia land twice the size of Singapore', *Jimma Times*, 30 January 2011, reproduced by [farmlandgrab.org: farmlandgrab.org/post/view/18072](http://farmlandgrab.org/post/view/18072)
- 12 'Iran's export of \$44m farming gear to Sudan', *Tehran Times*, 17 January 2011, reproduced by [farmlandgrab.org: farmlandgrab.org/post/view/18019](http://farmlandgrab.org/post/view/18019)
- 13 'UAE has a long history of support for Sudan', *The National*, 5 January 2011, reproduced by [farmlandgrab.org: farmlandgrab.org/post/view/17942](http://farmlandgrab.org/post/view/17942)
- 14 See note 1.
- 15 '1.02 billion people hungry', UN FAO press release, 19 June 2009, [fao.org/news/story/0/item/20568/icode/en/](http://fao.org/news/story/0/item/20568/icode/en/)
- 16 *Foreign Direct Investment In Land In Developing Countries*, 2009, p12, GTZ, [responsibleagroinvestment.org/rai/sites/responsibleagroinvestment.org/files/gtz-foreign-direct-investment.pdf](http://responsibleagroinvestment.org/rai/sites/responsibleagroinvestment.org/files/gtz-foreign-direct-investment.pdf)
- 17 Report submitted by the Special Rapporteur on the Right to Food Olivier De Schutter, United Nations General Assembly, December 2010.
- 18 See note 16.
- 19 See note 1.
- 20 *Introduction: Global Land Grabs: Investments, risks and dangerous legacies*, Land Research Action Network, Development, 2011, 54 (1), pp5-11.
- 21 See note 1.
- 22 See note 1.
- 23 *Growing Pains: The Possibilities and Problems of Biofuels*, 2009, Christian Aid, [christianaid.org.uk/images/biofuels-report-09.pdf](http://christianaid.org.uk/images/biofuels-report-09.pdf)
- 24 See note 23.
- 25 See note 1, box 1.3.
- 26 *From Land Grab to Win-Win*, FAO policy brief, June 2009, [ftp://ftp.fao.org/docrep/fao/011/ak357e/ak357e00.pdf](http://ftp.fao.org/docrep/fao/011/ak357e/ak357e00.pdf)
- 27 'Increased agricultural investment is critical to fighting hunger', FAO Investment Centre, [fao.org/tc/tci/whyinvestinagricultureandru/en/](http://fao.org/tc/tci/whyinvestinagricultureandru/en/)
- 28 See note 26.
- 29 *Foreign Land Deals and Human Rights*, 2010, Foreword, Center for Human Rights and Global Justice, [law.nyu.edu/ecm\\_dlv2/groups/public/@nyu\\_law\\_website\\_\\_alumni/documents/documents/ecm\\_pro\\_067266.pdf](http://law.nyu.edu/ecm_dlv2/groups/public/@nyu_law_website__alumni/documents/documents/ecm_pro_067266.pdf)
- 30 'Saudi billionaire's company will invest \$2.5 billion in Ethiopia rice farm', *Bloomberg*, March 23 2011, [bloomberg.com/news/2011-03-23/saudi-billionaire-s-company-will-invest-2-5-billion-in-ethiopia-rice-farm.html](http://bloomberg.com/news/2011-03-23/saudi-billionaire-s-company-will-invest-2-5-billion-in-ethiopia-rice-farm.html)
- 31 'Palm oil giant Sime Darby ventures into Africa', *AFP*, 26 January 2011, reported on [farmlandgrab.org: farmlandgrab.org/post/view/18045](http://farmlandgrab.org/post/view/18045)
- 32 See note 1.
- 33 *The UK's 5th National Communication on Climate Change*, 2009, Department of Energy and Climate Change, p6.
- 34 See note 1.
- 35 See note 1.
- 36 See note 1.
- 37 See note 1.
- 38 *The New Frontier. A baseline survey of large-scale land based investment in Southern Sudan*, Norwegian People's Aid 2011, [npaid.org/filestore/NPA\\_New\\_Frontier.pdf](http://npaid.org/filestore/NPA_New_Frontier.pdf)
- 39 See note 1.
- 40 See note 1.
- 41 See note 1.
- 42 See note 1.
- 43 See note 1.
- 44 'Why it makes more sense to invest in farmers than farmland', Lorenzo Cotula, IIED, July 2010, [pubs.iied.org/pdfs/17082IIED.pdf](http://pubs.iied.org/pdfs/17082IIED.pdf)
- 45 *Land, Housing and Property Issues*, briefing, Internal Displacement Monitoring Centre, [internal-displacement.org/8025708F004D404D/\(httpPages\)/EB81AF77A31BB514C1257682003B2657?OpenDocument](http://internal-displacement.org/8025708F004D404D/(httpPages)/EB81AF77A31BB514C1257682003B2657?OpenDocument)
- 46 Interview with Christian Aid, 2 March 2011.
- 47 For more information, see [idlo.int/english/Programs/Social%20Development/Land%20Law/Pages/ProjectsDetails.aspx?IDPRJ=24](http://idlo.int/english/Programs/Social%20Development/Land%20Law/Pages/ProjectsDetails.aspx?IDPRJ=24)
- 48 For more information on the Endorois Case, see: <http://terra0nullius.wordpress.com/2010/02/17/the-african-commission-endorois-case-toward-a-global-doctrine-of-customary-tenure/>
- 49 'Pressure on farmland is increasing at an unprecedented rate, warns new UN report', press release by the Special Rapporteur on the Right to Food, October 2010.

**50** *Land Deals In Africa: What is in the Contracts?*, IIED, 2011, <http://pubs.iied.org/pdfs/12568IIED.pdf> The countries involved in the deals examined by IIED were: Cameroon, Ethiopia, Liberia, Madagascar, Mali, Senegal, Sudan, Southern Sudan.

**51** See note 50.

**52** See note 50.

**53** See note 50.

## Mali

**1** *Foreign Land Deals and Human Rights: Case Studies on Agricultural and Biofuel Investment*, Center for Human Rights and Global Justice, New York: NYU School of Law, 2010, p85, [law.nyu.edu/ecm\\_dlv2/groups/public/@nyu\\_law\\_website\\_\\_alumni/documents/documents/ecm\\_pro\\_067266.pdf](http://law.nyu.edu/ecm_dlv2/groups/public/@nyu_law_website__alumni/documents/documents/ecm_pro_067266.pdf)

**2** These statistics are from the World Food Programme, [wfp.org/countries/mali](http://wfp.org/countries/mali) and [home.wfp.org/stellent/groups/public/documents/op\\_reports/wfp228611.pdf](http://home.wfp.org/stellent/groups/public/documents/op_reports/wfp228611.pdf) and from UN Human Development Programme, [hdrstats.undp.org/en/countries/profiles/MLI.html](http://hdrstats.undp.org/en/countries/profiles/MLI.html)

**3** *Foreign Direct Investment in Land in Developing Countries*, 2009, GTZ, p37, [responsibleagroinvestment.org/rai/sites/responsibleagroinvestment.org/files/gtz-foreign-direct-investment.pdf](http://responsibleagroinvestment.org/rai/sites/responsibleagroinvestment.org/files/gtz-foreign-direct-investment.pdf)

**4** Ibid.

**5** 'Lonrho secures rice land deal in Angola', *Financial Times*, 16 January 2009, [ft.com/cms/s/0/63460024-e342-11dd-a5cf-0000779fd2ac.html#axzz1JP8hPMNb](http://ft.com/cms/s/0/63460024-e342-11dd-a5cf-0000779fd2ac.html#axzz1JP8hPMNb)

**6** 'Rice land grabs undermine food sovereignty in Africa', *Development*, 2011, 54 (1), pp31-34, [palgrave-journals.com/development/journal/v54/n1/full/dev201098a.html](http://palgrave-journals.com/development/journal/v54/n1/full/dev201098a.html)

**7** See note 3.

**8** See note 3.

**9** See note 3.

**10** 'Mali opposition party demands details of land leases, warns of possible "land grab"', 10 February 2011, Associated Press, reproduced by [farmlandgrab.org](http://farmlandgrab.org), [farmlandgrab.org/post/view/18140](http://farmlandgrab.org/post/view/18140)

**11** See note 1.

**12** See note 6.

**13** See note 6.

## Cambodia

**1** *NGO Position Papers on Cambodia's Development in 2009- 2010 to the 3rd Cambodia Development Co-operation Forum*, May 2010, [sithi.org/admin/upload/media/\[2010-06-01\]NGO%20Position%20Papers%20on%20Cambodia%20%20Development%20in%202009-2010/NGO%20Position%20Papers%20on%20Cambodia%20%20Development%20in%202009-2010.pdf](http://sithi.org/admin/upload/media/[2010-06-01]NGO%20Position%20Papers%20on%20Cambodia%20%20Development%20in%202009-2010/NGO%20Position%20Papers%20on%20Cambodia%20%20Development%20in%202009-2010.pdf)

**2** 'Country overview, Cambodia', WFP, 2010, [wfp.org/countries/cambodia](http://wfp.org/countries/cambodia)

**3** Ibid.

**4** Article 30, *The Land Law 2001*, Office for the High Commissioner of Human Rights (OHCHR), 2002, [http://webcache.googleusercontent.com/search?q=cache:kbdxMdO5T1oJ:www2.ohchr.org/english/bodies/cescr/docs/ngos/ICSO\\_Annex1\\_Cambodia\\_CESCR42.doc+the+land+law+cambodia+2001&hl=en&gl=uk](http://webcache.googleusercontent.com/search?q=cache:kbdxMdO5T1oJ:www2.ohchr.org/english/bodies/cescr/docs/ngos/ICSO_Annex1_Cambodia_CESCR42.doc+the+land+law+cambodia+2001&hl=en&gl=uk)

**5** *Land Grabbing and Poverty in Cambodia: The Myth of Development*, LICADHO, May 2009, [licadho-cambodia.org/reports/files/134LICADHOREportMythofDevelopment2009Eng.pdf](http://licadho-cambodia.org/reports/files/134LICADHOREportMythofDevelopment2009Eng.pdf)

**6** 'Land spats top 200 last year', *Phnom Penh Post* article, Adhoc website – Cambodian Human Rights and Development Association, February 2011, [adhoc-cambodia.org/article.php?language=english&art\\_id=187&currentpage=1](http://adhoc-cambodia.org/article.php?language=english&art_id=187&currentpage=1)

## Land grab alternatives

**1** *Rising Global Interest in Farmland*, World Bank, 2011, p130, [siteresources.worldbank.org/INTARD/Resources/ESW\\_Sept7\\_final\\_final.pdf](http://siteresources.worldbank.org/INTARD/Resources/ESW_Sept7_final_final.pdf)

**2** *Making the Most of Agricultural Investment: A survey of business models which provide opportunities for smallholders*, UN FAO and IIED, 2010, p4, [ifad.org/pub/land/agri\\_investment.pdf](http://ifad.org/pub/land/agri_investment.pdf)

**3** Ibid.

**4** Ibid.

**5** See note 1.

**6** See note 1.

**7** Lorenzo Cotula and Sonja Vermeulen, *Contexts and Procedures for Farmland Acquisitions in Africa: What outcomes for local people?* *Development* 2011, 54(1), (40-48), p47, [palgrave-journals.com/development/journal/v54/n1/full/dev201094a.html](http://palgrave-journals.com/development/journal/v54/n1/full/dev201094a.html)

**8** *Foreign Land Deals and Human Rights*, Center for Human Rights and Global Justice, 2010, [law.nyu.edu/ecm\\_dlv2/groups/public/@nyu\\_law\\_website\\_\\_alumni/documents/documents/ecm\\_pro\\_067266.pdf](http://law.nyu.edu/ecm_dlv2/groups/public/@nyu_law_website__alumni/documents/documents/ecm_pro_067266.pdf)

**9** Olivier De Schutter, UN Special Rapporteur on the Right to Food, Foreword, *Foreign Land Deals and Human Rights*, Center for Human Rights and Global Justice, [law.nyu.edu/ecm\\_dlv2/groups/public/@nyu\\_law\\_website\\_\\_alumni/documents/documents/ecm\\_pro\\_067266.pdf](http://law.nyu.edu/ecm_dlv2/groups/public/@nyu_law_website__alumni/documents/documents/ecm_pro_067266.pdf)



# TAX STACKING THE ODDS AGAINST THE POOR

How punitive policies and secretive dealings impact on poor countries



Christian Aid/Les Stone

Market day in Jocotan, Guatemala. Many indigenous people come in from the mountains to sell their produce. Malnutrition is rife in this lower-middle-income country



## “ Developing countries appear to have suffered illicit outflows on their food trade worth more than one-and-a-half times as much as the food aid they received

The ability of developing countries to feed themselves depends in part on their natural resources and climate patterns, and whether they are periodically assailed by droughts or floods. But the amount of money they have at their disposal is also a major factor.

With adequate finances, money can be invested in agriculture in a variety of ways: in research and development, irrigation, subsidising seeds and fertiliser, controlling prices to protect farmers and introducing adaptation measures to take account of climate change.

And for society as a whole, health and education programmes can be funded to protect the poorest – children in particular – from food shortages, and lift communities out of poverty.

In addition, research shows that the higher the share of government expenditure that is funded by tax, the stronger the state-citizen relationship, and so the more likely it is the money will be spent well, free from corruption and in the interests of citizens.<sup>1</sup>

For many years, richer countries, and the international financial institutions they control such as the World Bank, imposed a series of economic measures on the developing world in exchange for trade and aid.

Broadly, those measures were referred to as the Washington Consensus. The main relevant elements included governments being forced to remove protective tariffs from agricultural produce, reduce subsidies, abandon price controls and close down the agricultural boards that would once have bought stock at times of surplus to keep for when times were hard.<sup>2</sup>

The imposition of such measures made life extremely difficult for many small farmers, who found they were unable to compete in the market place with heavily subsidised products from richer countries.

Belatedly, the flaws in such a one-size-fits-all package are now recognised and the Consensus has been consigned (in G20 rhetoric at least) to history.<sup>3</sup> The suffering it caused, however, lives on.

Another way in which rich countries inflict enormous damage on the economies of developing nations, however, remains in place – unchecked, and largely unremarked upon.

That is the process by which some unscrupulous multinational corporations use the secrecy offered by the world's tax havens to avoid, and even evade, tax due to the exchequers of the poorer countries in which they operate.

It involves a practice known as 'abusive transfer pricing' in which the profits made in poorer countries are manipulated to hide them from the revenue authorities. By charging itself for services such as 'branding' and 'insurance', the multinational shifts the money off-shore

to jurisdictions where little or no tax is liable.

When the products are sold on in richer countries, the higher prices charged then turn the tax revenues the corporations have saved into profit.

Such concealment is made possible by the manner in which one subsidiary of a multinational trades with another part of the same parent company.

Although such transactions are supposed to be conducted according to an 'arm's length principle' in which the prices a multinational charges itself should mirror market prices, international accounting standards at present permit such deals to go largely unchecked.

Countries where the tax authorities lack the staff, expertise and access to the information necessary to investigate and challenge effectively are particularly hard hit.

Christian Aid drew attention to the practice of abusive transfer pricing in 2008 in a report entitled *Death and Taxes: the True Toll of Tax Dodging* and since then has devoted much of its campaigning efforts to addressing the injustice that results.<sup>4</sup>

We estimate that developing countries lose as much as US\$160bn each year to that one form of tax dodging alone. Clearly, such a large amount of money could have a marked effect on social spending.

The international trade in food is far from exempt from this phenomenon.

According to detailed analysis carried out for Christian Aid by leading US academic Professor Simon Pak, abusive transfer pricing could be involved in between 1 per cent and 3.5 per cent of trades involving live animals and foodstuffs.<sup>5</sup>

This may sound small, but is equivalent to between US\$1.6bn and US\$5.6bn dollars per year on average, in the period of the study (2005-2007). By way of comparison, the food aid component of the official development assistance given by leading donor countries during the same period averaged less than US\$1bn a year. Developing countries, therefore, appear to have suffered illicit outflows on their food trade worth more than one-and-a-half times as much as the food aid they received.<sup>6</sup>

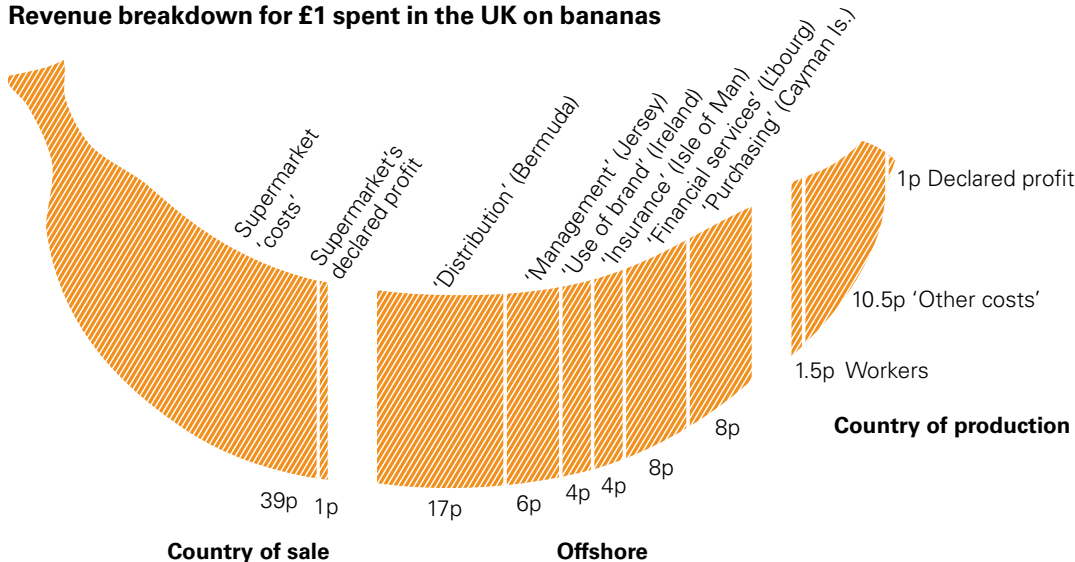
Some states stand out as particularly hard hit, among them those where the incidence of malnutrition among children is particularly high. Guatemala, which largely exports coffee, sugar and bananas, is one such country. While the questionable outflows that appear are not significantly greater than other countries in the region, the contrast with its malnutrition is stark.

'Guatemala stands out as much for its indicators of wealth as for the indicators of poverty. It is the world's

## “Guatemala stands out as much for its indicators of wealth as for the indicators of poverty. It is the world’s fifth-largest exporter of coffee and sugar as well as having the third-highest rate of malnourished children

Central American Institute for Fiscal Studies

### Revenue breakdown for £1 spent in the UK on bananas



fifth-largest exporter of coffee and sugar as well as having the third-highest rate of malnourished children,' says Christian Aid partner in Guatemala the Central American Institute for Fiscal Studies (ICEFI).

By comparing the value of Guatemalan exports to the amount the same goods were said to be worth when imported into richer nations, we discovered that trade in the broad food category accounts for a much higher share of the abnormal pricing found than the developing country average. That stood at 1-3.5 per cent, while Guatemala's ranged from 13-27 per cent of mispricing on trade with the US, and from 28-45 per cent of mispricing on trade with the EU.<sup>7</sup>

The figure is particularly shocking when it is remembered that Guatemala – officially classified by the World Bank as a lower-middle-income country,<sup>8</sup> receiving just 1.5 per cent of its GDP in foreign aid – is a place where 21 per cent of the population is under-nourished.<sup>9</sup>

The latest World Bank analysis shows that Guatemala comes third in a ranking of 136 countries according to the prevalence of stunting among children, caused by malnourishment.<sup>10</sup> And yet the same report estimates the cost of increasing the scope of work to provide children with vital nutrients at less than US\$16m a year. The apparent mispricing in the food trade detailed above is estimated at US\$29.4m in 2005, US\$50.7m in 2006 and US\$50.4m in 2007: in other words it could pay for the key short-term policy to counter malnutrition each year several times over.

To understand the basic way in which trade can be manipulated to shift profits out of food-producing countries such as Guatemala, we can consider the example of bananas. In 2007, a detailed investigation by the *Guardian* newspaper, with support from Christian Aid partner the Tax Justice Network, revealed that of

every £1 spent in the UK on bananas, 39p went to the supermarket retailer and 1p was declared in profit.<sup>11</sup>

The remaining 60p is broken down as follows: 17p went to a company in Bermuda for 'use of the distribution network'; 6p to a company in Jersey for 'management services'; 4p to a company in Ireland for 'use of the brand'; 8p to a company in Luxembourg for use of 'financial services'; 8p to a Cayman Islands company for use of the 'purchasing network'; and, lastly, 13p remained in the producing country. Of that, 1.5p went to pay workers, 10.5p on other costs and finally 1p was declared in profit. For a corporate tax rate of say 30 per cent, this would mean the producer country receiving just 0.3p in corporate tax for every pound spent on the final product.

Although it is legitimate to pay for the services of subsidiaries/companies based in tax havens, it is easy to see how multinationals, if so inclined, can maximise returns by reducing the amount of profit declared at source.

To update the 2007 investigation, we looked at UN Comtrade data for Guatemala's international trade in 2009 (UN Comtrade is a record of some 1.75 billion commodity trade deals going back to 1962.) Guatemala receives an average export price for its bananas of US\$0.18 per kilo, while importing countries declare an average price for the same goods of US\$0.46.<sup>12</sup>

This differential is equivalent to around 65 per cent of the declared export price. Companies argue that since producer countries export unripe (green) fruit, and final retailers sell ripe (yellow) fruit, there are some costs of ripening to consider in addition to transportation – more or less, these amount to providing appropriate storage facilities for the process to occur.<sup>13</sup>

According to the records, Guatemala receives the lowest price in the region for its bananas – the other

# US\$16m

World Bank estimates it would cost less than this to increase the scope of work to provide children with vital nutrients in Guatemala

major producers are Ecuador, receiving US\$0.35 per kilo, Colombia (US\$0.40), Costa Rica (US\$0.36), Honduras (US\$0.35) and the Dominican Republic (US\$0.38). There is no suggestion that Guatemala's bananas are inferior to those produced in neighbouring countries.<sup>14</sup>

If Guatemala merely received an average of the price commanded there, this would work out at US\$0.36 per kilo, an increase of 29.4 per cent for 2009, or US\$130m more profit declared in-country. Were this to face a tax rate of just 12.3 per cent, it would still raise the entire US\$16m that the World Bank estimates it would cost to scale up core micronutrient nutrition interventions.

Elsewhere in the region, trade in other food items seem to be subject to similar abuse. Christian Aid has looked at the export price for pineapples per kilo from Costa Rica – US\$0.40 per kilo. Imported into Europe however, the price doubles to US\$0.83 cents per kilo in Belgium, and up to US\$1.14 in the Netherlands. Costa Rica may have seen US\$591m in pineapple profits illicitly shifted out of the country through underpriced exports in 2009 alone.<sup>15</sup>

In fact, our analysis of mispricing makes it absolutely clear that policy makers are getting it wrong, and international accounting standards have to be changed to curtail the abuse. A requirement that companies trading across borders must declare the profits made and taxes paid in every country where they operate would introduce much needed transparency.

The US has gone some way to addressing this. The Dodd-Frank Act, passed by US Congress in 2010, includes a provision requiring US-listed companies operating in the extractive industries, such as oil, gas and mining, to be more open about their foreign business dealings.

Specifically, they must report all payments to governments, as well as some details of their economic activity, on a project-by-project and country-by-country basis. If properly carried out, this will go a long way to providing the type of transparency needed for tax authorities and citizens to hold these companies and their own governments to account.

However, Christian Aid's analysis makes it clear that the tax losses suffered by developing countries occur across all industry sectors, and exports in the extractive industries account for a small proportion of the total.

Discussion now ongoing within the EU centres on two options: to replicate the Dodd-Frank Act, or to pursue a more ambitious alternative that would apply to all industries, not just the extractive sector. The latter would clearly have a much greater impact on poverty.

In the meantime, developing countries are exploring

ways to use what data they do have in a more powerful way. ICEFI in Guatemala is currently working with Pak and the Guatemalan tax authority to analyse customs data and identify areas of abusive transfer pricing.

This is the first time a developing country's tax authority has agreed to give access to detailed customs data and to use Pak's methodology to help them identify and investigate cases of abnormal pricing. Ultimately, however, enforcing fairer pricing is going to take political will.

In Guatemala, it is therefore encouraging that Vice-President Rafael Espada is working closely with the international Task Force on Financial Integrity and Economic Development, a global coalition of NGOs and governments to which Christian Aid belongs, in efforts to address tax dodging and wider financial abuses in the country.

**“ In spite of it being the most populous country in Central America... just 0.003 per cent of Guatemalans – 195 people – own 50 per cent of the country's total bank deposits**

But doing so will be no easy task. Indeed, last year, Finance Minister Juan Alberto Fuentes resigned in frustration at his inability to secure tax reform, for the country badly needs more revenue.

It has one of the worst records of social spending in the region: just 7 per cent of GDP in 2009 compared to an average of 16.2 per cent across Latin America and the Caribbean.<sup>16</sup>

One reason for this is the size of the tax base. In spite of it being the most populous country in Central America, with nearly 14 million inhabitants, just 0.003 per cent of Guatemalans – 195 people – own 50 per cent of the country's total bank deposits, according to ICEFI.<sup>17</sup>

Meanwhile, more than half the population earn less than US\$2 a day – one of the official classifications of poverty.

Tax collection rates are among the lowest in the region, amounting to 10.5 per cent of GDP in 2010. (By contrast, the figure for OECD countries combined is more than 30 per cent.)<sup>18</sup>

Not only does Guatemala collect little, but it collects poorly, having one of the most generous tax regimes in the region for exemptions and tax breaks.

In 2008, reports ICEFI, the total amount of these

7%

## Proportion of GDP as social spending in Guatemala in 2009

tax breaks, deductions and exemptions was twice the amount the state expected to collect in income tax. For each quetzal (unit of Guatemalan currency equal to US\$0.13) collected in income tax, the state 'gave back' more than 2.5 quetzales in exemptions and deductions.<sup>19</sup> Of the many sectors that benefit from exemptions the mining sector stands out. Royalties were slashed by the Guatemalan government from six to one per cent to encourage investment.

There was outrage several years ago when it was revealed that a major gold-mining concern had qualified for *maquila*, or tax-free status, on the grounds that its product was for export.<sup>20</sup>

Although that status was initially introduced to encourage companies engaged in low-skill activities for export, such as garment manufacturers, of late, its use has been spreading.

Until now, the country's economic elite has managed to shrug off multiple donor demands for tax reform, and stymie a UN-backed referendum on constitutional reform.

However, all that could be changing, according to a report from a Dutch think-tank, the Clingendael Institute.<sup>21</sup>

Guatemala, which until the mid-1990s endured a 36-year civil war in which as many as 200,000 were killed, is now an immensely attractive place

for narco-traffickers because of its geographic position.

The US State Department estimates that 250 tonnes of cocaine – around a quarter of global production – passes through the country every year.<sup>22</sup>

Since the arrival of outposts from the exceptionally brutal Mexican Zeta drugs cartel, levels of violence in the capital, Guatemala City, have risen dramatically so that it now has one of the highest murder rates in the world.

Ironically, according to the Clingendael Institute, the very existence of increasingly powerful and violent criminal networks might offer a way forward. For the country's traditional elite may decide that ceding power to the state is the only way to protect its interests, and a more equitable society could emerge – a high price indeed for social justice.

In the meantime, Christian Aid's campaign to promote greater transparency in the way that multinational corporations publish their accounts, and in the manner tax jurisdictions, including havens, exchange information, may help put paid to the burden of abusive transfer pricing at least. For the sake of poverty eradication, policy makers in the EU (not least in Britain, Ireland and Spain) should be demanding transparency measures that cover all multinational companies operating in the developing world.



Christian Aid/Les Stone

Santa Ramos Cervantes at home in the Guatemalan highlands. She makes hammocks to supplement the family's meagre income from her husband's day labouring



## Case study

### Guatemala

## Malnourished children in a lower-middle-income country



**Seven-year-old Alex Antonio can barely walk after he was born six months' premature. Malnourished mothers are more likely to give birth prematurely**

The day before New Year's Eve was the last time Maria and Mariano Vasquez saw their 16-year-old son. There was simply no future for him in the family's tiny smallholding perched on a chalky hillside above Jocotán in the 'dry corridor' of eastern Guatemala.

The family mortgaged the little land they had to raise the 40,000 quetzales (about \$US5,200) to pay 'coyotes' or people traffickers to take him north and smuggle him into the US. The journey to New York took him several weeks.

He has been there a month now but has so far been unable to earn any money. The responsibility for repaying the debt is on his shoulders, so he needs to find work soon.

Last year's maize crop on the Vasquez plot was particularly poor because of torrential rain during the planting season, followed by drought.

The family have been forced to use what little money they have to buy maize in the market to supplement supplies.

Like most people living on the steep slopes above Jocotán, their diet consists of maize tortillas and beans, with coffee to drink (lack of sanitation means that all water must be boiled).

In season, they will also eat cabbage, lettuce and tomatoes that they grow themselves. Very occasionally they buy chicken or eggs.

'There is not enough money to buy all that we need,' says Maria Vasquez, whose seven-year-old son, Alex Antonio, can barely walk. He was born prematurely after just six months in the womb, along with a twin brother who died after 18 days.

Complications in childbirth are common in the rural highlands of Guatemala where mainly indigenous families live. Malnourished mothers

are more likely to give birth prematurely to low-birthweight babies.

Less than half (41 per cent) of births are attended by qualified healthcare personnel.<sup>1</sup> It's a figure that is only slightly higher than that of Sierra Leone, the country with the world's lowest human development index in 2008.<sup>2</sup>

More often than not, Guatemalan women have only their husbands or other family members to help them give birth at home.

Thus the country with the highest number of private aeroplanes and helicopters per head in Central America is also the country with the highest rate of women dying from unresolved complications in pregnancy – with lack of affordable transportation to a health centre a factor.<sup>3</sup>

For the children who survive, ICEFI

**“ In 2009, when images of emaciated children from eastern Guatemala caught the attention of the international media, the Guatemalan Food Fair earned a place in the Guinness Book of Records for the lavishness of its buffet**

explains: ‘Almost 50 per cent of boys and girls under five are severely stunted, an indicator of chronic malnutrition.

‘This rate is higher than that of Haiti, by far the poorest country in the Americas, and is the fifth-highest rate in the world.’

Making the situation even more tragic is the fact that the effects of chronic malnutrition can never be cured. Research published in *The Lancet* in 2008 showed that children who suffered the condition faced not only stunted growth, but also a diminished mental capacity and a substantial decrease in earning power.<sup>4</sup>

In 2009, when images of emaciated children from eastern Guatemala caught the attention of the international media as news of the malnutrition there spread, the Guatemalan Food Fair earned a place in the *Guinness Book of Records* for the lavishness of its buffet.<sup>5</sup>

It is the indigenous communities descended from the Mayans who are worst affected. Mostly tenant smallholders, they face discrimination at all levels and suffer twice the rate of stunting as the non-indigenous population.

That is no accident. Andrés Botrán, first Secretary for Food Security and Nutrition in a previous government, is on record admitting: ‘Budgets were shifted to keep some populations less developed. For us it is a national shame.’

The Vasquez family are actually better off than many of their neighbours. At least they have something to mortgage in order to raise money to send their son to the US.

Santa Ramos Cervantes lives in Chichicaste, not far from the Vasquez holding, with her husband and seven children. When Christian Aid visits, she is spinning rope made from

fibres of a local plant. It will be used to make hammocks to sell.

It is cheaper to use this material because the family can process it themselves, but the resulting hammocks are scratchy and uncomfortable, which means they sell for less than those made from chemically treated fibres.

In March, when people are preparing to plant and therefore have less money available, she sells her hammocks for 30 quetzales (US\$3.90). In October she can get 45 quetzales.

She has never visited Chiquimula, the main town in this remote region, much less the capital, Guatemala City. With the particularly poor maize crop this year the family has been hungry, she says.

Her youngest son, José Antonio, who has not yet reached his second birthday, has a distended belly – a clear symptom of stage one malnutrition, although the shops are full of food.

Enrique Maldonado, an economist with ICEFI, explains: ‘There is plenty of food in Guatemala, but it is in the supermarkets, out of reach of most rural families, physically and economically.’

The Cervantes family is benefitting from Mi Familia Progresá, a programme introduced by the former First Lady of Guatemala, Sandra Torres, to improve the health of the poorest families.

Ms Torres recently initiated divorce proceedings so she can stand in the next election. The constitution prevents a president or his family from standing for more than two terms. Her husband Álvaro Colom is near the end of his second.

Eligible families receive 150 quetzales (US\$19.50) a month if their children attend school regularly and a further 150 quetzales for attending clinics to receive vaccinations and regular weight checks. There is also a monthly payment of 150 quetzales

for pregnant women in an effort to combat maternal malnutrition.

This measure is demonstrably increasing school attendance and family income. But, as ICEFI points out, the quality of education that children are receiving is often sub-standard, particularly in rural areas.

Mi Familia Progresá is also accused of creating a perverse incentive for families to have more children. At the Christian Aid-supported Bethania clinic in Jocotán, Director Dr Carlos Arriola said a three-fold increase in pregnancy rates had been recorded since the measure was introduced.<sup>6</sup>

The trend is a measure of the economic desperation of the people. The department of Chiquimula where the Bethania clinic is located has the worst infant-mortality rate in the country – 55 deaths for each 1,000 live births, compared with 16 in Guatemala City.

# ENDNOTES

- 1 Michael L. Ross, 'Does taxation lead to representation?', *British Journal of Political Science* 2004, 34, pp229-249. See also the wider supporting literature in Deborah Brautigam, Odd-Helge Fjeldstad and Mick Moore (editors), 2008, *Taxation and State Building in Developing Countries*, Cambridge University Press.
- 2 See for example, Dani Rodrik, 'Goodbye Washington Consensus, hello Washington confusion? A review of the World Bank's "Economic Growth in the 1990s: Learning from a Decade of Reform"', *Journal of Economic Literature* 2006, 44 (December), pp973-987.
- 3 'The Washington Consensus is over... the old world has gone.. we have got to build a new consensus on economic development for the future,' Gordon Brown, G20 press conference, 2 April 2009, [webarchive.nationalarchives.gov.uk/+/number10.gov.uk/news/speeches-and-transcripts/2009/04/g20-press-conference-18934](http://webarchive.nationalarchives.gov.uk/+/number10.gov.uk/news/speeches-and-transcripts/2009/04/g20-press-conference-18934)
- 4 *Death and Taxes: The True Toll of Tax Dodging*, Christian Aid, 2008, [christianaid.org.uk/images/deathandtaxes.pdf](http://christianaid.org.uk/images/deathandtaxes.pdf)
- 5 Calculations carried out on database generated by Professor Simon Pak for Christian Aid report *False Profits*, 2009, [christianaid.org.uk/Images/false-profits.pdf](http://christianaid.org.uk/Images/false-profits.pdf) For this calculation, the broad food category was defined as comprising HS codes 1-24.
- 6 The leading donor countries are the members of the OECD's Development Assistance Committee, and according to the OECD they gave the following amounts in food aid: US\$906m in 2005, US\$1bn in 2006 and US\$1.06bn in 2007. Source: [stats.oecd.org/Index.aspx?DatasetCode=TABLE2A](http://stats.oecd.org/Index.aspx?DatasetCode=TABLE2A) The assessment of illicit outflows through trade mispricing applies only to developing country trade with the EU and US.
- 7 See note 5. Calculations carried out on database generated by Professor Simon Pak for Christian Aid report *False Profits* (2009). Again, the broad food category was defined as comprising HS codes 1-24.
- 8 'Country and lending groups', World Bank, [data.worldbank.org/about/country-classifications/country-and-lending-groups](http://data.worldbank.org/about/country-classifications/country-and-lending-groups).
- 9 World Bank – most recent statistics taken from World Development Indicators for aid as a share of GDP, and for prevalence of malnutrition among the population.
- 10 World Bank, *Nutrition at a Glance: Guatemala*, [siteresources.worldbank.org/NUTRITION/Resources/281846-1271963823772/Guatemala.pdf](http://siteresources.worldbank.org/NUTRITION/Resources/281846-1271963823772/Guatemala.pdf)
- 11 See the following key elements of the story: [guardian.co.uk/business/2007/nov/06/12](http://guardian.co.uk/business/2007/nov/06/12)  
[guardian.co.uk/business/2007/nov/06/19](http://guardian.co.uk/business/2007/nov/06/19)  
[taxresearch.org.uk/Blog/2007/11/06/tax-is-going-bananas/](http://taxresearch.org.uk/Blog/2007/11/06/tax-is-going-bananas/)
- 12 Analysis of UN Comtrade data, available via [comtrade.un.org/db](http://comtrade.un.org/db)
- 13 See, for example, the (ultimately unsuccessful) defence against charges of mispricing brought against a leading Ecuadorean exporter in the *Ecuador Times*, 3 March 2011, [ecuadortimes.net/2011/03/03/bananera-noboa-representative-spoke-about-the-gloss-imposed-by-the-sri/](http://ecuadortimes.net/2011/03/03/bananera-noboa-representative-spoke-about-the-gloss-imposed-by-the-sri/)
- 14 See note 12.
- 15 See *Guardian* story at [guardian.co.uk/global-development/datablog/2010/oct/19/costa-rican-pineapple-investigation-industry-profits](http://guardian.co.uk/global-development/datablog/2010/oct/19/costa-rican-pineapple-investigation-industry-profits) The analysis used UN Comtrade data, see note 12.
- 16 *Social Panorama of Latin America*, Economic Commission for Latin America and the Caribbean (ECLAC), 2009.
- 17 *Rights or Privileges? Fiscal Commitment to the Rights to Health, Education and Food in Guatemala*, the Central American Institute for Fiscal Studies and the Centre for Economic and Social Rights, p7, [cesr.org/downloads/Rights%20or%20Privileges%20Executive%20Summary%20final.pdf](http://cesr.org/downloads/Rights%20or%20Privileges%20Executive%20Summary%20final.pdf)
- 18 Website of Guatemalan tax authority, SAT, [portal.sat.gob.gt/sitio/](http://portal.sat.gob.gt/sitio/)
- 19 See note 17.
- 20 See note 17.
- 21 Ivan Briscoe and Martin Rodriguez Pellecer, 'A State Under Siege: elites, criminal networks and institutional reform in Guatemala', Clingendael Institute, September 2010, p56, [clingendael.nl/publications/2010/20100913\\_cru\\_publication\\_ibriscoe.pdf](http://clingendael.nl/publications/2010/20100913_cru_publication_ibriscoe.pdf)
- 22 Ibid.

## Guatemala

- 1 *Rights or Privileges? Fiscal Commitment to the Rights to Health, Education and Food in Guatemala*, the Central American Institute for Fiscal Studies and the Centre for Economic and Social Rights, p14, [cesr.org/downloads/Rights%20or%20Privileges%20Executive%20Summary%20final.pdf](http://cesr.org/downloads/Rights%20or%20Privileges%20Executive%20Summary%20final.pdf)
- 2 Ibid.
- 3 Ibid.
- 4 Samuel Loewenberg, 'Guatemala's malnutrition crisis', *Lancet*, 374 (9685), pp187-189, 18 July 2009, [thelancet.com/journals/lancet/article/PIIS0140-6736\(09\)61314-3/fulltext](http://thelancet.com/journals/lancet/article/PIIS0140-6736(09)61314-3/fulltext)
- 5 See note 1.
- 6 Interview with Carlos Arriola, Director of Bethania health clinic in Jocotan, Guatemala (Christian Aid partner).



# CLIMATE CHANGE THE IMPACT ON FOOD PRODUCTION

The growing threat that farmers face



A bore hole in eastern Kenya. The IPCC warns that by 2020 climate change will leave up to 250 million people in Africa exposed to increased water stress.



5°C

UK Met Office's prediction of the global temperature rise by 2100 if emissions remain at current levels

In Peru, the country's glaciers have receded by nearly 20 per cent in the past four decades, meaning less water for Andean farmers' crops and animals.<sup>1</sup>

In Bangladesh, the rising sea level is contributing to the increased salinity of ground water, damaging crops and forcing women to walk miles in search of water fit for drinking.<sup>2</sup>

And around the world, there has been an increase in the frequency of severe tropical cyclones attributed primarily to high temperatures caused by greenhouse gases.

It is a bitter irony that climate change caused by humans is having its greatest impact on countries that bear the least responsibility for the carbon emissions that have created the problem in the first place.

## “ Slow-onset climate changes are expected to have potentially catastrophic effects on food production in many developing countries, particularly between 2050 and 2100

Food and Agriculture Organization

And within those countries, it is often the poorest and most vulnerable communities that suffer most. They tend to live in poorer housing in areas more exposed to nature, on flood plains, steep slopes and degraded land, and have the least to fall back on when things go wrong. Already spending a higher proportion of their income on food than people in richer countries, they are particularly hard hit when its price goes up.

Expert climate projections paint a picture that is overwhelmingly bleak for such communities. Hurricanes will increase in intensity, and storms, floods and droughts will become more frequent.<sup>3</sup>

There will also be more insidious changes such as shifts in temperature and rainfall that affect crop productivity, as well as a rising incidence of animal and plant pests and diseases.

Given the relatively slow nature of those incremental changes, it is tempting for governments and other policy makers to neglect or ignore what is happening, their complacency encouraged by powerful lobbies that have an interest in business-as-usual.

The FAO says that far greater attention must be

paid to these incremental changes. In a submission to the United Nations Framework Convention on Climate Change (UNFCCC), it warned: 'Slow-onset climate changes are expected to have potentially catastrophic effects on food production in many developing countries, particularly between 2050 and 2100.

'While such changes may be relatively gradual and occur over the long term, action is urgently needed now in order to reduce risks *ex-ante* rather than *ex-post*, particularly through building the resilience of agricultural production systems.'<sup>4</sup>

The most authoritative assessment of what is likely to happen to the planet as global warming intensifies comes in the *Fourth Assessment Report* of the Intergovernmental Panel on Climate Change (IPCC). It suggests that within less than 10 years, in parts of Africa, farmers who depend on the rain to water their crops will see yields fall by up to 50 per cent.

'Agricultural production, including access to food, in many African countries is predicted to be severely compromised. This would further adversely affect food security and exacerbate malnutrition,' it warns. The same report also states that by 2020, climate change will leave some 75-250 million people in Africa exposed to increased water stress.<sup>5</sup>

The report dates back to 2007 and since then, evidence has emerged that its findings may well be too conservative.<sup>6</sup> Some changes, such as the disappearance of ice cover in the Arctic, are occurring more quickly than predicted. As the FAO puts it: 'the future is arriving earlier than expected.'<sup>7</sup>

The IPCC report highlights Africa as one of the regions that is likely to be particularly badly affected by climate change, because of its limited capacity to adapt to the changes and because of the nature of the changes expected.<sup>8</sup> Some 2 million people already die there each year as a result of malnutrition.<sup>9</sup>

However, it also forecasts problems with food production in other parts of the developing world. In Latin America, 'productivity of some important crops is projected to decrease and livestock productivity to decline, with adverse consequences for food security,' it says.<sup>10</sup>

In addition: 'Changes in precipitation patterns and the disappearance of glaciers are projected to significantly affect water availability for human consumption, agriculture and energy generation.'<sup>11</sup>

In relation to Asia, the IPCC says that by the 2050s, the availability of fresh water in central, south, east and southeast Asia is projected to fall, while some heavily populated coastal regions will be at risk due

# 1°-2°C

The degree of temperature rise in lower latitude areas that could damage crop yields

to flooding from the sea and in some cases rivers.<sup>12</sup> It can't be more precise about what is going to happen because of unknowns, such as what the human race plans to do to protect itself. Will future generations grasp the nettle and take the kind of measures necessary to tackle global warming, or will matters be allowed to deteriorate further? And if so, how fast will that deterioration accelerate?

At a global level, if the average temperature rise remains below 3°C, then food production is 'likely' to increase but if it goes beyond that, then it is 'very likely to decrease'.<sup>13</sup>

Not all regions will be affected in the same way, however – there will be winners and losers. In cooler, more northerly parts of the world, local temperature increases of up to 3°C are expected to make crops produce slightly more food, according to the IPCC.<sup>14</sup> However, in lower latitudes, which are already relatively warm, even local temperature increases of 1°-2°C are projected to damage crop yields, 'which would increase the risk of hunger', it notes.

To put such temperature increases into context, the UK Met Office predicts that if the world continues with 'business-as-usual' and fails to curb emissions, then by 2100 the temperature rise will be more than 5°C.<sup>15</sup>

Globally, the average temperature rise has been 0.74°C since the beginning of the 20th century, and Christian Aid supports calls for measures to be taken to limit the total to less than 1.5°C. Only then will a measure of protection be afforded to places at particular risk such as small island states and some of the world's least developed countries.

But holding temperatures at that level will be an enormous challenge. So far, rich countries, with historic responsibility for the carbon emissions that have precipitated global warming, have failed to take the actions needed to keep the rise below 2°C.

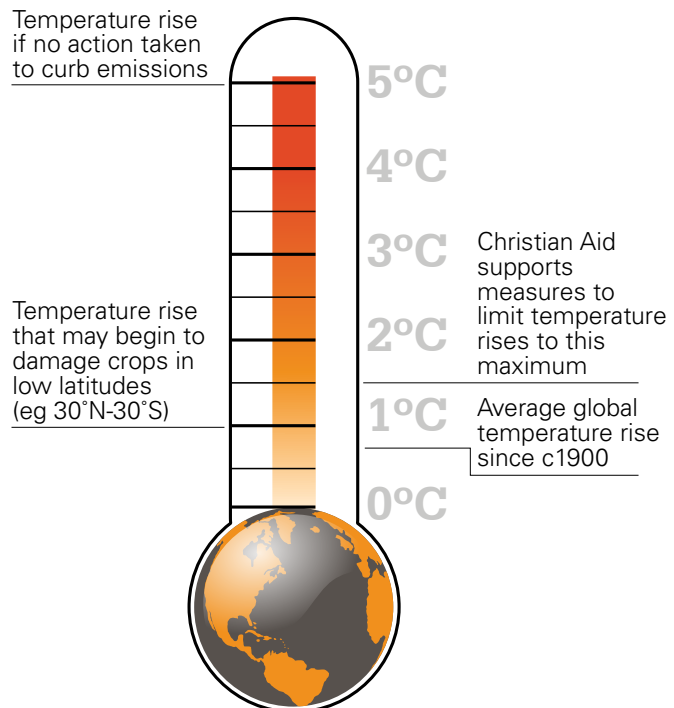
## The storm clouds gather

The WFP is in no doubt about what lies ahead: 'The global climate is changing. Humanitarian organisations must now meet new and increasing challenges to continue their life-saving work,' it says.

'The number of climate-related natural disasters has doubled over the last 10 years – and scientists predict in the coming decades that there will be more frequent and more severe disasters due to changes in world weather patterns.

'Climate change also threatens to significantly increase hunger and malnutrition worldwide. Many of the communities that will bear the most serious consequences are already vulnerable and suffering

## Critical global temperature increase levels



from hunger, under-nutrition and food insecurity.'<sup>16</sup>

Higher food prices will compound the problems. An analysis by the IFPRI suggests that wheat and rice prices will rise in real terms by about 50 per cent between 2010 and 2050, while those of maize will double.<sup>17</sup> In its most 'pessimistic' scenarios, wheat rises by 60 per cent, rice prices closer to 80 per cent, and maize by 110 per cent.

'World prices are a useful single indicator of the future of agriculture,' it says. 'Rising prices signal the existence of imbalances in supply' and demand and growing resource scarcity, driven by demand factors such as growing population and income or supply factors such as reduced productivity due to climate change.

'This analysis suggests that unlike the 20th century, when real agricultural prices declined, the first half of the 21st century is likely to see increases in real agricultural prices.'

A separate IFPRI study shows the anticipated cost of these price increases – less food for each person, and millions more malnourished children.<sup>18</sup>

With climate change, the number of calories available to each person is likely to fall by 10 per cent below levels in 2000. That may not sound much, until the narrowness of the margin between enough and too little in developing countries is considered. The number

## “ A 1°C rise in average temperature will reduce yields across two-thirds of Africa’s maize-growing areas, even without a drought

Stanford University scientists



of children under five who will be malnourished will be at least 24 million higher in 2050 than would be the case in a world with an unchanged climate.<sup>19</sup>

Another concern about the effects of climate change on food production is that however much the global average temperature rises, during the growing season it will be even higher. This is especially alarming for already very hot regions such as the Sahel in northwest Africa.

‘Such heat will compound food insecurity caused by variable rainfall in the region,’ warned scientists from Stanford University and the University of Washington, Seattle, who used temperature records and climate models to study how growing season temperatures around the world are likely to change.<sup>20</sup>

‘Even today, temperatures in the Sahel can be so high that the rain evaporates before it hits the ground. New bounds of heat stress will make the region’s population far more vulnerable to poverty and hunger-related deaths and will likely drive many people out of agriculture altogether, thus expanding migrant and refugee populations.’<sup>21</sup>

A later Stanford University study predicts that a 1°C rise in average temperature will reduce yields across two-thirds of Africa’s maize-growing areas, even without a drought.

The figures could be skewed because plants used in crop trials tend to be well fertilised, and are thus more susceptible to heat damage. However, the results accorded with those of a previous trial based

**Kenya: Kadija Omar’s goat died just over an hour ago. She has now given up her pastoral way of life. ‘Life of the pastoralist is over. I have nothing to go back to.’**

on actual harvest data that predicted yield losses of 20 per cent or more for African maize by the middle of the century.<sup>22</sup>

### Effects of climate change

Not every change in climate can be attributed to manmade global warming. Disentangling the effects of long-term ‘natural’ climatic variations from those of human-induced climate change in particular regions is extremely difficult and often impossible.

But some phenomena are so at odds with historical patterns that they are thought likely to be due, at least in part, to ‘anthropogenic’ activity.

Examples include heavy rainfall in parts of the northern hemisphere, shrinking glaciers, and rising temperatures across every continent except Antarctica since the mid-20th century.<sup>23</sup>

Around the world, there has been an increase in the most severe tropical cyclones, which have destroyed crops and houses and killed and injured people and livestock. According to the IPCC, ‘it is more likely than not that anthropogenic influence’ was a contributory factor.<sup>24</sup>

Climate change is causing the sea level to rise. In Bangladesh, this is one of the reasons why ground water is becoming salty, with a significant



# 10-14%

The proportion of greenhouse gas emissions by humans attributable to agriculture

area of the country already affected.

'Out of 2.85 million hectares of the coastal and offshore areas, about 1.2 million hectares of arable land are affected by varying degrees of soil salinity,' the government of Bangladesh has told the UNFCCC.<sup>25</sup>

The salinity is forcing women to travel further and further in search of fresh water for their families. It is also damaging the quantity and quality of many crop yields and killing fruit trees.<sup>26</sup>

Another impact of climate change – glacial melt – is affecting people in the district of Paras, Ayacucho, in the Peruvian Andes, one of the poorest regions in the country.

Local people survive on small-scale farming and face a dwindling supply of water for crops, pastureland and cows – and the prospect of eventually being forced off their land and in to the cities, when the water runs out.<sup>27</sup>

But then the cities will also be hit, for they too rely in part on glacial melt for their water.

## How farmers are responding

Across the world, farmers themselves are responding to change with a variety of coping strategies.

Christian Aid partner organisations, for instance, support farmers in growing different varieties of crops in response to the changing length of the rainy season, including some traditional kinds that had been abandoned.

They also help advise on the revival and improvement of traditional planting methods to minimise the amount of water needed.

Community seed banks are being built up, along with stores of seeds and staple foods for use after hurricanes, and walls and dams are erected to trap the rainwater that does fall and prevent soil erosion.

Such adaptations can significantly improve farmers' yields, boosting their families' nutrition and finances. However, they often require outside support in the form of expert advice, equipment, materials and money.

The total cost of adapting poor countries' agriculture to climate change, it has been estimated, will be between US\$2.5bn and US\$7bn a year over the next few decades.<sup>28</sup>

But according to the FAO, even this sum would be too little to prevent serious damage, unless there is prior investment aimed at meeting MDG 1 of halving the number of people suffering hunger by 2015.<sup>29</sup>

The cost of adaptation has to be weighed against its benefits, for instance, significant reductions in the crop-yield losses that climate change will cause. One recent study in Malawi suggests that spending

on poor farmers' resilience to disasters and adaptation to climate change is extremely good value for money.

Researchers examined 53 farming villages and found that for every US\$1 spent on projects such as flood management, soil and water conservation and the creation of grain banks, there were net benefits to the community of at least US\$24.<sup>30</sup>

Complicating matters further is the fact that agriculture itself is a major source of the greenhouse gases that cause global warming, contributing each year some 10-14 per cent of all human emissions – and considerably more if the deforestation it drives is included.<sup>31</sup>

However, there is considerable scope, as shown in the chapter on sustainable solutions, for agriculture to develop in a sustainable fashion that contributes to farmers' food security with minimal greenhouse gas emissions.

This mitigation, however, also requires funding. In 2007, the UNFCC estimated that in developing countries, mitigation in the agricultural sector would cost an additional US\$12.25bn-14bn a year. Once again, however, the FAO suggests the cost may be higher than this.<sup>32</sup>

All of this needs paying for, which raises all-too-familiar questions of who is responsible for producing the money and on which sources they should draw.

One answer being promoted by the World Bank is to bring farmland into the carbon market, for use as a store of carbon. Last November, the Bank cited the Kenya Agricultural Carbon Project – which involves 45,000 hectares of land – as an early example of how land can become both more productive and also a store for carbon that would otherwise be released into the atmosphere.<sup>33</sup>

Christian Aid and a number of other NGOs regard this as a false solution. One fear is that small farmers will lose their land as a result of more powerful interests grabbing it for use as a carbon store and therefore a source of saleable carbon credits. This is not least because of lack of farmers' formal titles to the land they use (see the chapter on land grabs) and because of the difficulties they face in supplying the technical data needed to qualify their land for inclusion in large-scale carbon markets.

Wider concerns about carbon markets also apply – for instance, that they help rich countries to meet their own targets for emissions cuts, while increasing the extent of the cuts that poor countries ultimately have to make in order to contain the global temperature rise.

Christian Aid's answer to such questions is based on the Greenhouse Development Rights framework, which

it helped draw up, that says countries' responsibility for paying the cost of climate change should be calculated according to their historical responsibility for the crisis and also their financial capacity.<sup>34</sup>

Potential sources of funding for developing countries to adapt farming to climate change while mitigating its contributions to the crisis go beyond the scope of this report.

However, Christian Aid strongly favours public funding by rich countries, because of their overwhelming responsibility for causing climate change and because developing countries need substantial, predictable financing for both adaptation and mitigation.

One innovative suggestion for raising the money, by the South Centre, an intergovernmental organisation of developing countries, is to use some of the US\$375bn plus that OECD countries currently spend each year on subsidies for their own farmers.<sup>35</sup>

## “ The costs of inaction vastly outweigh those of cutting global emissions

What is overwhelmingly clear is that, as Lord Stern pointed out in his review of the economics of climate change, doing nothing is not an option.<sup>36</sup> The costs of inaction vastly outweigh those of cutting global emissions and will fall first and worst on poor people who are least to blame for the crisis. Adaptation is also vital, in order to cope with impacts of climate change, which are already unavoidable.



Farmer Silus Katiku irrigates 20 acres of land thanks to a sand dam built by a Christian Aid partner. He grows melons, sweet potatoes, pigeon peas and kale.

## Case study

### India

## A new farming revolution



Christian Aid/Eleanor Bantall

**On India's drought-prone Deccan plateau, dalit women harvest linseed – one of a number of crops they cultivate collectively**

In a hunger-prone Indian state – where not too long ago a stampede of farmers at a subsidised seed distribution point became so frenzied that police opened fire – a quiet revolution is taking place.

It not only ensures there is food all year round for the community involved – dalits, a section of society so marginalised they were once known as 'untouchables' – but also provides them with power over their lives, particularly the women, who have emerged as the driving force behind the changes.

Several hours' drive from Hyderabad, in the state of Andhra Pradesh, Medak district sits on the Deccan plateau, a geographical feature of southern India characterised by shallow soil, hard, stony ground and low rainfall.

Medak was once so impoverished that the late Indian Prime Minister Indira Gandhi chose it as her constituency in a key election to signal her support for the rural poor in return for theirs.

In recent years, however, it has become home to the Deccan Development Society (DDS), a collective that Christian Aid helps support, which now covers some 70 villages over a 20-mile radius with a population of 200,000.

DDS has helped to transform farming methods; establish a 'green school' to provide youngsters with both an education and livelihood skills; train health workers in traditional medicines and midwifery; and launch a community radio station run by women – with agricultural tips and slots for lost buffaloes and cattle among its top items.

There is also a DDS-subsidised food distribution system to help the very poor. And where once dalit farmers were forced to depend on rich landowners for handouts of seeds in return for work, it is they who now own the seed banks.

In the nearest town, the presence of a restaurant claiming to be the only one in India specialising in millet dishes hints at what lies behind the transformation.

Largely eschewing water-intensive cash crops such as rice and sugar cane, DDS farmers have instead reverted to traditional, more drought-resistant varieties of grain – millets and sorghum.

These crops – supplemented by a biodiverse mix that includes pigeon peas, chick peas, lentils and amaranth, sun hemp, green gram and black gram – are key to the way the area is now able to feed itself.

The collective began life in the mid-1980s when the term 'climate change' had barely been coined. It was the brainchild of a group of urban professionals from Hyderabad – led by television journalist PV Satheesh – who were interested in development, and wanted to help the poor in the area to help themselves.

'This is an extremely harsh land, not much rainfall, with the kind of temperatures and soil quality that make it difficult for people to survive,' says Satheesh today. 'The rains used to be regular, but now they are erratic. Drought is always just around the corner.'

'Slowly, when we started talking to people here about the problems they had and solutions they had come up with, we became more and more fascinated about the depth of people's knowledge.'

Satheesh explains that his group initially worked only with men, but became disillusioned. 'If someone said they needed 200 rupees then everyone needed 200 rupees, but most of what the money went on was going to the movies or sitting in a tea shop,' he says.

It was only after the group helped mediate in a government house-building scheme, and saw the contribution that women wanted to make that the group changed its approach.

'We saw women begin to

## “Eighty per cent of farmer suicides are related to bore holes – they borrow money to dig and then within a year it goes dry. They don’t realise that there is not enough water underground for everybody

PV Satheesh, Deccan Development Society

participate more, influencing the design and asking questions about the materials used. That was the defining moment,’ Satheesh says.

‘The women questioned why we only worked with men and suggested instead setting up womens’ groups called sanghams (collectives). For a year we had a combined one of men and women, but it was men talking and women listening. So then we created women’s sanghams and the benefits soon became apparent.’

Under Indira Gandhi, says Satheesh, a ceiling had been put on the amount of land the rich could own, and the rest had to be given to those in need. The land handed over, however, tended to be the poorest and least fertile.

DDS women began transforming the landscape, using soil from a reservoir bed and planting a variety of crops. Within a short time yields increased from 50kg to as much as 400-600kg.

The woman then mapped land in their villages that had been left uncultivated and negotiated with the owners, offering to make it productive again for a share of the produce, which could then be sold, with the proceeds going back into the collective.

India’s Public Distribution System (PDS), which provides subsidised rice and grain to the poor, had long before helped speed the demise of millet and sorghum, which are coarser grains that need more preparation.

They are not only drought-resistant, but also don’t need the fertiliser required by the hybrid seeds that the government subsidises. In addition, sorghum in particular provides fodder, which means livestock can also be kept.

DDS has encouraged biodiversity, suggesting that every farmer plants diverse crops to be harvested at different times, ensuring new supplies of food throughout the year. Seeds can then be exchanged to help other farmers diversify.

Today, says Satheesh, ‘no one is hungry, and we have food security, health security and nutritional security. Compared to rice, millets are storehouses of nutrition, [with] more calcium and more protein.

‘Rice supplied to the people by the government is, by its own admission, five to seven years old and grown with tonnes of chemicals. Our entire work is organic, and because of the kind of crops we grow, we can withstand rainlessness.’

He has no doubt that the ‘dry land’ agriculture practised by DDS would work on a far larger scale.

‘Most farmers are “miragists”. Everyone thinks they will strike water and it will change their agriculture and life,’ he says. ‘Eighty per cent of farmer suicides are related to bore holes – they borrow money to dig and then within a year it goes dry. They don’t realise that there is not enough water underground for everybody.

‘We push them away from that kind of mirage. If a farmer is dry-land farming, he is doing a great favour to the nation. If you want to grow one kilo of rice, you use 3,000 kilos of water. Every acre of dry-land farming saves up to 6 million litres of water for the nation.’

Adding millet and sorghum to the PDS would, he believes, galvanise commercial growing.

‘When climate change deepens, this will be a cutting-edge solution,’ he says. ‘All those crops requiring underground water [from bore holes] will go. If the temperature rise goes up to 2[°C], the entire wheat belt will disappear.’

He noted that it was easy to be daunted by the sheer number of mouths to feed. ‘Look at India as 500,000 villages – not 1.2 billion people. Each of these 500,000 villages can become food self-sufficient, the way the women of DDS have made their villages. The moment you focus on the figure of 1.2 billion you start having doubts.

‘We have no doubt, however, the land can support 1.5 billion if necessary. Anywhere from 20 million to 110 million hectares lie fallow. It could all be cultivated. The reason why they aren’t is because they are very harsh lands – they break your heart.

‘But these millions of hectares could produce food for hundreds of millions and at least 60 million head of cattle. And there would be millions of new livelihoods created.’



## Case study

### Honduras

## Cutting carbon and saving rainforest



**Honduras farmers engaged in the age-old 'slash and burn' method of clearing agricultural land. Alternative, environmentally friendly ways of land clearance are gaining ground**

For millions of people around the world, it is not just fluctuating prices in the market that threaten their ability to obtain enough nutritious food, but the diminishing fertility of the scrap of land they have to farm.

In poor, rural communities, people have been preparing land for cultivation in the same way for centuries. But the method used destroys the soil's fertility in as little as two years.

To clear the land for crops, farmers chop down vegetation and once it dries, burn the dead foliage. It's estimated that this traditional 'slash and burn' technique could, internationally, release as much as 240 million tonnes of carbon into the atmosphere each year – about a third of the amount emitted annually as a result of global air travel.<sup>1</sup>

Trees draw water from the ground up through their roots and release most of it back into the atmosphere through their leaves.<sup>2</sup> When they are cut down, the local water cycle is dangerously disrupted: more rainfall runs off down the mountains, while

less water is absorbed and rereleased into the atmosphere to fall again as rain.<sup>3</sup> Ultimately, this means that deforestation contributes to drought.<sup>4</sup>

On top of its wider environmental impact, 'slash and burn' also leaves the land unprotected against the elements. Rain washes away topsoil and nitrogen is leached out, diminishing the land's fertility and leaving it useless for several years.

Furthermore, what seems, at first glance, a quick and easy method of clearing land actually requires more labour in the long term, as without trees to provide shade, weeds grow quickly and have to be cut back repeatedly.

But while richer farmers can bear the cost of some land lying fallow until it recovers, for others, fresh territory must be cleared.

In Honduras, however, where that fresh territory is virgin rainforest, Christian Aid partner the Christian Organisation for Development in Honduras (OCDIH) has set out to replace the age-old tradition of clearing land with more environmentally friendly techniques.

Working with small farmers across the country, OCDIH is demonstrating ways to increase productivity of soil, so land doesn't have to be cleared.

By planting fast-growing trees whose roots fix nitrogen into the soil, and using organic fertiliser, farmers can produce much more out of the land by preserving its topsoil. The tree leaves can also be used as mulch, releasing nutrients into the soil, helping preserve the topsoil and conserving soil moisture.

Along with teaching organic-farming techniques, OCDIH also introduces new crops and livestock, so that people have a better diet all year round. So far, it has spread the word to 14,000 people.

Claudia Herrera, Christian Aid's programme officer in Honduras, explains: 'For poor Hondurans, the staple diet is maize tortillas and beans. In the communities where OCDIH works, more than 60 per cent of the population are malnourished.'<sup>5</sup>

'With the help of OCDIH, people are now planting a much wider range of crops, including avocados, oranges and cabbage... as well as raising chickens and cows.'

Farmer Julio Cesar Chavez has been working with OCDIH in the Copan region of Honduras since 2007. 'The old people taught us to burn to cultivate, but since we began working with Christian Aid, we have become environmental evangelists.'

# ENDNOTES

- 1 'Retreating glacier impacts economic outlook in the tropical Andes', World Bank, 23 April 2008, [web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/LACEXT/PERUEXTN/0,,contentMDK:21739254~menuPK:50003484~pagePK:2865066~piPK:2865079~theSitePK:343623,00.html](http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/LACEXT/PERUEXTN/0,,contentMDK:21739254~menuPK:50003484~pagePK:2865066~piPK:2865079~theSitePK:343623,00.html)
- 2 This information was gathered by Christian Aid researchers during interviews with people in areas affected by groundwater salinity. A published account based on some of those interviews is Christian Aid's 2007 report *The Human Face of Climate Change*, [christianaid.org.uk/images/cc\\_impacts\\_adaptation\\_final.pdf](http://christianaid.org.uk/images/cc_impacts_adaptation_final.pdf)
- 3 Intergovernmental Panel on Climate Change, *Fourth Assessment Report: Climate Change 2007*, Synthesis Report, Summary for Policymakers, section three: [ipcc.ch/publications\\_and\\_data/ar4/syr/en/spms3.html](http://ipcc.ch/publications_and_data/ar4/syr/en/spms3.html)
- 4 *Climate Change and Food Security in the Context of the Cancun Agreements*, submission by the Food and Agriculture Organization of the United Nations to the 14th session of the AWG-LCA, in accordance with paragraph 1 of the Bali Action Plan. (The document was publicised in an FAO press release on 31 March 2011 and can be downloaded from this webpage: [fao.org/news/story/en/item/54337/icode/](http://fao.org/news/story/en/item/54337/icode/))
- 5 See note 3.
- 6 *Warning Signs: The Science and Impacts of Climate Change*, Christian Aid, June 2010, [christianaid.org.uk/images/time-for-climate-justiceJune2010.pdf](http://christianaid.org.uk/images/time-for-climate-justiceJune2010.pdf)
- 7 *Coping with a Changing Climate: Considerations for Adaptation and Mitigation in Agriculture*, FAO, 2009, p30, [fao.org/docrep/012/i1315e/i1315e00.htm](http://fao.org/docrep/012/i1315e/i1315e00.htm)
- 8 See note 3.
- 9 *Stern Review: The Economics of Climate Change*, 2006, p72, [webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/d/Chapter\\_3\\_How\\_climate\\_change\\_will\\_affect\\_people\\_around\\_the\\_world\\_.pdf](http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/d/Chapter_3_How_climate_change_will_affect_people_around_the_world_.pdf)
- 10 See note 3.
- 11 See note 3.
- 12 See note 3.
- 13 IPCC Working Group II, 'Impacts, adaptation and vulnerability', Technical summary section 4.1, box TS.5, [ipcc.ch/publications\\_and\\_data/ar4/wg2/en/tssts-4-1.html](http://ipcc.ch/publications_and_data/ar4/wg2/en/tssts-4-1.html)
- 14 Ibid.
- 15 *Advance: Improved Science for Mitigation Policy Advice*, 2010, UK Met Office, p7, [metoffice.gov.uk/media/pdf/n/c/advance.pdf](http://metoffice.gov.uk/media/pdf/n/c/advance.pdf)
- 16 *Climate Change: A Humanitarian Challenge for the 21st Century*, World Food Programme, [documents.wfp.org/stellent/groups/public/documents/communications/wfp212397.pdf](http://documents.wfp.org/stellent/groups/public/documents/communications/wfp212397.pdf)
- 17 *Food Security and Climate Change – Challenges to 2050 and Beyond*, December 2010, International Food Policy Research Institute, [ifpri.org/sites/default/files/publications/ib66.pdf](http://ifpri.org/sites/default/files/publications/ib66.pdf)
- 18 *Climate Change Impact on Agriculture and Costs of Adaptation*, October 2009, International Food Policy Research Institute, p12, [ifpri.org/sites/default/files/publications/pr21.pdf](http://ifpri.org/sites/default/files/publications/pr21.pdf)
- 19 Ibid.
- 20 David S Battisti and Rosamond L Naylor, 'Historical warnings of future food insecurity with unprecedented seasonal heat', *Science* 323, pp240-242, 9 January 2009, [iis-db.stanford.edu/pubs/22374/battisti\\_naylor\\_2009.pdf](http://iis-db.stanford.edu/pubs/22374/battisti_naylor_2009.pdf)
- 21 Ibid.
- 22 'Nonlinear heat effects on African maize as evidenced by historical yield trials', David B Lobell et al, *Nature Climate Change*, 1, pp42-45, 13 March 2011, [nature.com/nclimate/journal/v1/n1/full/nclimate1043.html](http://nature.com/nclimate/journal/v1/n1/full/nclimate1043.html)
- 23 On rainfall patterns, see: 'Human contribution to more-intense precipitation extremes', *Nature*, Seung-Ki Min et al, published online 16 February 2011, [nature.com/nature/journal/v470/n7334/full/nature09763.html](http://nature.com/nature/journal/v470/n7334/full/nature09763.html)  
On glaciers, see: Intergovernmental Panel on *Climate Change, Fourth Assessment Report: Climate Change 2007*, Working Group II, Impacts, Adaptation and Vulnerability, section 1.3.1, [ipcc.ch/publications\\_and\\_data/ar4/wg2/en/ch1s1-3-1.html](http://ipcc.ch/publications_and_data/ar4/wg2/en/ch1s1-3-1.html)  
On temperatures, see *ibid*, section 1.4: IPCC, [ipcc.ch/publications\\_and\\_data/ar4/wg2/en/ch1s1-4-2.html](http://ipcc.ch/publications_and_data/ar4/wg2/en/ch1s1-4-2.html)
- 24 Intergovernmental Panel on Climate Change, *Fourth Assessment Report: Climate Change 2007 Working Group I, The Physical Science Basis, Executive Summary*, [ipcc.ch/publications\\_and\\_data/ar4/wg1/en/ch9s9-es.html](http://ipcc.ch/publications_and_data/ar4/wg1/en/ch9s9-es.html) and Hans-Martin Fussel, 'The Risks of Climate Change: A Synthesis of New Scientific Knowledge since the Finalisation of the IPCC Fourth Assessment Report', *Development and Climate Change* (background note to the World Development Report 2010), Potsdam Institute for Climate Impact Research, Germany, 15 December 2008, [pik-potsdam.de/~fuessel/download/wdr2010\\_bg\\_note\\_ipcc\\_update.pdf](http://pik-potsdam.de/~fuessel/download/wdr2010_bg_note_ipcc_update.pdf)
- 25 *National Adaptation Programme of Action*, Ministry of Environment and Forest, Government of the People's Republic of Bangladesh, November 2005, p4, [unfccc.int/resource/docs/napa/ban01.pdf](http://unfccc.int/resource/docs/napa/ban01.pdf)
- 26 This information was gathered by Christian Aid researchers during interviews with people in areas affected by groundwater salinity. A published account based on some of those interviews is Christian Aid's 2007 report *The Human Face of Climate Change*, [christianaid.org.uk/images/cc\\_impacts\\_adaptation\\_final.pdf](http://christianaid.org.uk/images/cc_impacts_adaptation_final.pdf)
- 27 This information was gathered by Christian Aid researchers during interviews with farmers in the areas mentioned in Peru.
- 28 The lower figure is a World Bank estimate of the annual cost of agricultural adaptation in developing countries between 2010 and 2050; the higher figure is an estimate by the United Nations Framework Convention on Climate Change and the International Institute for Environment and Development. See '*Climate-Smart Agriculture: Policies Practices and Financing for Food Security, Adaptation and Mitigation*, 2010, p24, [fao.org/docrep/013/i1881e/i1881e00.htm](http://fao.org/docrep/013/i1881e/i1881e00.htm)
- 29 Ibid.
- 30 *Investing in Communities: The Benefits and Costs of Building Resilience and Food Security in Malawi*, Tearfund, November 2010, [tilz.tearfund.org/webdocs/Tilz/Research/Investing%20in%20Communities%20web.pdf](http://tilz.tearfund.org/webdocs/Tilz/Research/Investing%20in%20Communities%20web.pdf)

**31** The IPCC's *Fourth Assessment Report* puts the proportion of global emissions due to agriculture at around 10 to 12 per cent ([ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter8.pdf](http://ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter8.pdf)), but other sources put the figure higher (see for instance *Agriculture at the Crossroads*, UNCTAD, [unctad.org/en/docs/presspb20108\\_en.pdf](http://unctad.org/en/docs/presspb20108_en.pdf)).

**32** See note 28.

**33** 'First African emissions reductions purchase agreement for soil carbon signed in The Hague: Kenyan farming project could be model for the region', Carbon Finance Unit, World Bank, 3 November 2010, [web.worldbank.org/WBSITE/EXTERNAL/ TOPICS/ENVIRONMENT/EXTCARBONFINANCE/0,,contentMDK:22753648~pagePK:64168445~piPK:64168309~theSitePK:4125853,00.html](http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTCARBONFINANCE/0,,contentMDK:22753648~pagePK:64168445~piPK:64168309~theSitePK:4125853,00.html)

**34** For more information about Greenhouse Development Rights, see [gdrights.org/](http://gdrights.org/)

**35** 'Development, agriculture and food security: considerations for the upcoming Global Conference on Agriculture, Food Security and Climate Change', Informal Note 63, South Centre, 22 October 2010, [twinside.org.sg/title2/susagri/2010/susagri134/ Issue\\_Paper\\_on\\_Hague\\_Conference\\_Oct2010.pdf](http://twinside.org.sg/title2/susagri/2010/susagri134/Issue_Paper_on_Hague_Conference_Oct2010.pdf)

**36** See note 9.

## Honduras

**1** Email response from Dr Luiz E Aragao, a lecturer in Earth Systems Science at Exeter University. His estimates suggest that emissions from deforestation and slash-and-burn agriculture accounts for roughly 240 million tonnes a year.

**2** Environmental research company ICT international states that for every 100 litres of water a plant absorbs through its roots, 98 litres are returned to the atmosphere through transpiration via its leaves. [ictinternational.com.au/appnotes/ ICT101.htm](http://ictinternational.com.au/appnotes/ICT101.htm)

**3** 'Tropical deforestation affects rainfall in US and around the globe', *Science Daily*, 18 September 2005, [sciencedaily.com/ releases/2005/09/050918132252.htm](http://sciencedaily.com/releases/2005/09/050918132252.htm)

**4** 'Scientists agree that deforestation decreases rainfall, increases evaporation and often leads to drought-like conditions', [american.edu/TED/honduras.htm](http://american.edu/TED/honduras.htm)

**5** Of the 13,661 inhabitants in the catchment area around OCDIH's office in Protección, 60 per cent are malnourished. Of the 9,294 inhabitants around the Chinda office, 66 per cent are malnourished. Figures come from a baseline study carried out by OCDIH.

# POPULATION THE DEMOGRAPHY OF FOOD

How over-consumption is destroying the planet



Chris Stowers/Panos

The People Principle. The population is expected to grow to 9 billion by 2050, but it is 'rich country' consumption patterns that really threaten the planet



**“ Those who fail to see that population growth and climate change are two sides of the same coin are either ignorant or hiding from the truth. These two huge environmental problems are inseparable and to discuss one while ignoring the other is irrational**

Gaia scientist Dr James Lovelock<sup>1</sup>

**“ People who claim that population growth is the big environmental issue are shifting the blame from the rich to the poor... It's time we had the guts to name the problem. It's not sex; it's money. It's not the poor; it's the rich**

George Monbiot, environmentalist and writer<sup>2</sup>

**“ The characterisation of people concerned about population as elitist, uncaring monomaniacs demeans those who use such rhetorical devices to exercise their own dim prejudices about population – such as George Monbiot**

Sustainable development commentator Jonathon Porritt<sup>3</sup>

These three quotations come from public figures who might generally be assumed to be on the same side – at least in the sense of being broadly identified as respected environmentalists sharing a profound concern about the future of the planet.

And yet their combative tone highlights the emotive nature of the population issue. Are those who see a threat in population growth speaking from a privileged 'rich country' viewpoint, for it is in poor countries that the growth will occur? And are those who maintain that it is not population but the consumption patterns of richer societies that is the problem wilfully blind to the real issue?

The strident nature of the debate makes it all the more important to tread a careful path, treating arguments with respect and refraining from imputing bad motives, while at the same time seeking clarity. What is at stake – eradicating human hunger and ensuring survival – is too important to do otherwise.

In fact, there is broad consensus around two key points. First, not only are today's consumption patterns grossly unequal between rich and poor, but the overall *rate* of consumption of the planet's limited resources (from water and land to the 'space' for greenhouse gas emissions) is unsustainable. Without changes, we are actively undermining future generations' prospects of a good life.

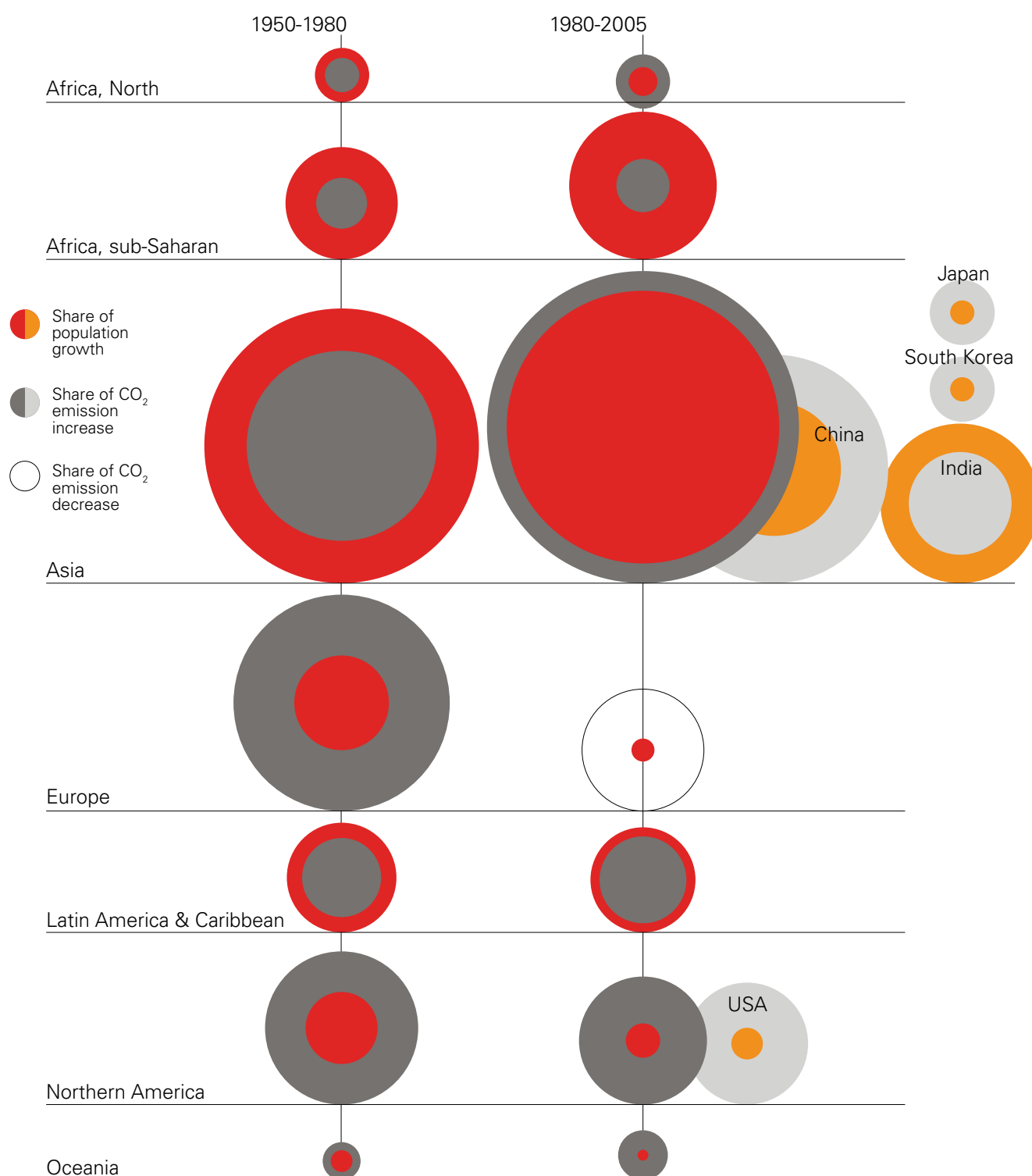
The second area of agreement is that the changes happening now are in the *wrong* direction. The population is growing, implying more people are consuming. And the evidence is that consumption patterns are unsustainable. Economic growth is allowing more people to adopt the damaging lifestyles that the world's richest countries, including the UK, have historically monopolised.

Separating the various elements of this problem allows each to be seen in context and its particular scale and urgency appreciated. To give just one example, Professor David Satterthwaite of the IIED has examined the respective patterns of growth in population and in carbon dioxide emissions.

As the illustration opposite indicates, nations with among the slowest population-growth rates had among the fastest growth rates in CO<sub>2</sub> emissions, while nations with among the fastest population-growth rates had among the slowest increases in CO<sub>2</sub> emissions.

'The countries with low population growth and high CO<sub>2</sub> emissions growth are mostly high-income or upper-middle-income nations, most are in Europe or Asia, and all had very considerable economic success in the period 1980-2005; the high population

## Share of the world's population growth and CO<sub>2</sub> emissions growth, 1950-1980 and 1980-2005



growth, low emissions growth countries are generally low-income nations mostly in sub-Saharan Africa, and many had little economic success during the period in question.

'Clearly, any consideration of changes in a nation's CO<sub>2</sub> emissions in the last few decades cannot be separated from a consideration of economic changes that include the extent (or not) of economic growth and the sectors where this growth took place, as well as changes in incomes and how these were distributed within the national population... it is

the number of consumers (and their consumption levels) that drives increases in GHG [greenhouse gas emissions], not the number of people...'<sup>4</sup>

The challenge, then, is to understand the relative role of consumption patterns, economic growth, population growth and their interactions, not only for CO<sub>2</sub> emissions but across the whole range of environmental impacts, and from there to begin to plot out a path towards sustainable development – a path that is consistent with poverty eradication over the long term.

**“ By 2050 the world’s population will reach 9.1 billion, 34 per cent higher than today. Nearly all of this population increase will occur in developing countries. Urbanisation will continue at an accelerated pace, and about 70 per cent of the world’s population will live in cities, compared to 49 per cent today. In order to feed this larger, more urban and richer population, food production must increase by 70 per cent**

*How to Feed the World in 2050, FAO*

### The policy challenge

Experts from around the world were invited to Rome in 2009 to discuss arguably one of the most important questions facing humanity over the next 40 years: will the world be able to produce enough food to feed a growing population, or will hunger become even more widespread than it is now?

The challenge facing humanity was starkly outlined in the opening words, above, of the report prepared for the occasion by the hosts, the FAO.

The meeting was prompted by the sharp increases in food prices that had occurred in global markets the previous year, the international financial crisis and its fallout, and the fact that the number of people going malnourished and hungry worldwide was on the rise.

It came at a time when governments and academics were ringing alarm bells over the sustainability of rich people’s consumption patterns come the mid-21st century.

The meeting was followed a month later by a summit of world leaders that pledged to increase substantially aid to agriculture in developing countries, but failed to come up with the specific funds the UN had hoped for.<sup>5</sup>

A further wake-up call came earlier this year with the publication of *The Future of Food and Farming: Challenges and choices for global sustainability*, a report sponsored by the UK government.<sup>6</sup>

It states: ‘There is urgency in taking what may be very difficult policy decisions today relating to the diverse challenges facing the global food system, and also to address the present levels of hunger – 925 million people... and perhaps a further billion lack[ing] sufficient micronutrients.

‘It is imperative that the need for rapid action is realised by all concerned... those suffering or at risk from hunger generally have the least influence on decision-making in the food system.’

Today, food-price rises are back, the global financial crisis and its fallout are still with us, and the challenges we face just keep mounting.

The first is political: how do we ensure that everyone – including people living in poverty – gets the food they need, both now and in the future? Producing enough to feed the planet, as we do now, does not in itself prevent hunger.

As Nobel Prize-winning economist Amartya Sen has argued, the economic, social and political arrangements that influence people’s ability to acquire the food they need are also critical.<sup>7</sup>

The second challenge is scientific: how do we produce sufficient food to feed the 9 billion there will be of us by 2050 without destroying the natural environment on which we all ultimately depend?

The third challenge is ultimately a moral one. Are the well-off, whose numbers are increasing as the middle classes in emerging economies grow in number, capable of adopting diets – never mind entire lifestyles – that are environmentally sustainable?

### We can’t carry on like this

The way we feed ourselves now has a dramatic impact on our natural environment. According to the World Resources Institute, humans have taken up one-quarter of the land area of the entire world with croplands and managed pasture, and displaced one-third of temperate and tropical forests and one-quarter of all natural grasslands to make way for agriculture.<sup>8</sup>

In all, humans have monopolised some 40 per cent of the world’s land area. Less than one-quarter, primarily in the polar regions and the deserts, remains intact. And as we move towards 2050, the amount of usable land may become less useful through desertification and urban sprawl.

According to some experts, today’s agriculture is severely undermining our chances of being able to feed ourselves in future. ‘Agriculture is the main driver of most ecological problems on the planet,’ Jeffrey Sachs, economist, *Scientific American* columnist and Earth Institute director, told a symposium in 2009 on the mounting challenge of feeding the world.<sup>9</sup>

Ecologist Jonathan Foley, director of the Institute on the Environment at the University of Minnesota, told the same meeting: ‘Agriculture, thanks to deforestation, nitrous oxide from fields, methane from cattle and rice paddies, and emissions from transporting food, is responsible for one-third of global greenhouse gas emissions from human activity.’<sup>10</sup>

In addition, agriculture accounts for at least 85 per cent of human water-consumption, a growing concern

# 6

The number of 'planets needed' for sufficient resources to keep CO<sub>2</sub> at safe levels if per capita carbon emissions of rich countries were duplicated by poorer ones

as aquifers diminish and hydrology changes in the face of climate change, he added. In addition, humans now use some 171 million tons of nitrogen as fertiliser every year, much of which ends up polluting lakes, rivers, streams and even the ocean.

Similarly, Peter Raven, former President of the American Association for the Advancement of Science, states: 'Clearly, the past half century has been a traumatic one, as the collective impact of human numbers, affluence (consumption per individual) and our choices of technology continue to exploit rapidly an increasing proportion of the world's resources at an unsustainable rate.'<sup>11</sup>

'During a remarkably short period of time, we have lost a quarter of the world's topsoil and a fifth of its agricultural land, altered the composition of the atmosphere profoundly, and destroyed a major proportion of our forests and other natural habitats without replacing them.

'Worst of all, we have driven the rate of biological extinction, the permanent loss of species, up several hundred times beyond its historical levels, and are threatened with the loss of a majority of all species by the end of the 21st century.'

Another study found agriculture to be so environmentally damaging – for instance through water pollution by fertilisers and pesticides, and through soil fertility loss and erosion – that its impacts 'may rival those of climate change over the next half century'.<sup>12</sup>

A separate report by the United Nations Environment Programme (UNEP), called the *Global Environment Outlook*, involved 1,400 scientists and took five years to prepare. It, too, warns that human consumption has already far outstripped available resources.<sup>13</sup>

'Each person on Earth now requires a third more land to supply his or her needs than the planet can supply,' it says. The fault lay with a failure 'to respond to, or recognise, the magnitude of the challenges facing the people and the environment of the planet.

'The systematic destruction of the Earth's natural and nature-based resources has reached a point where the economic viability of economies is being challenged – and where the bill we hand to our children may prove impossible to pay.'

The report's authors say their objective was 'not to present a dark and gloomy scenario, but an urgent call to action'.

Warning that tackling the problems may affect the vested interests of powerful groups, they call for protecting the environment to be moved 'to the core of decision-making'.

## We do the damage, they pay the price

When it comes to environmental devastation of the sort outlined in this chapter, some of us bear far more blame than others.

On the eve of India's independence, Mahatma Gandhi was asked whether he thought the country could follow the British model of industrial development. He replied: 'It took Britain half the resources of this planet to achieve its prosperity. How many planets will India require for development?'<sup>14</sup>

His comment underlined how rich countries have already taken a disproportionate share of the earth's natural resources in the course of their development. And it highlighted the impossibility of developing countries taking the same profligate path.

Decades later, Gandhi's 'how many planets?' question is more urgent than ever.

When the UNDP asked the same thing, this time in relation to carbon emissions, the answer was that if the per capita carbon emissions of rich countries were duplicated by poorer ones, then we would need six planets to keep carbon dioxide at a safe level. If everyone emitted at the same level as people in the US and Canada, then we would need nine planets.

Similar 'striking imbalances' were discovered when the environmental damage done by rich, poor and medium-income countries – for instance to the climate, the ozone layer and forests – between 1961 and 2000, was analysed.

'Climate change and ozone depletion impacts predicted for low-income nations have been overwhelmingly driven by emissions from the other two groups [rich and medium-income countries], a pattern also observed for overfishing damages indirectly driven by the consumption of fishery products,' said recent research published in the journal *Proceedings of the National Academy of Scientists*.<sup>15</sup> 'Indeed, through disproportionate emissions of greenhouse gases alone, the rich group [of countries] may have imposed climate damages on the poor group greater than the latter's current foreign debt. Our analysis provides *prima facie* evidence for an uneven distribution pattern of damages across income groups.'

## The merchants of doom

Until now, when anyone has asked how many people the planet can sustain, and how best we can do it, the reply has often been: stop breeding.

With hunger always most manifest in poor and marginalised communities, where families also tend to be larger, the message has been implicit – it is people



## “ World population hasn’t fallen since the Black Death of the 14th century

living in poverty who should stop having so many babies.

Stanford University population biologist Paul Ehrlich, in his book *The Population Bomb*, published in 1968, predicted: ‘Hundreds of millions of people are going to starve to death. The cancer of population growth... must be cut out,’ he stormed, ‘by compulsion if voluntary methods fail.’

Such alarm had first been raised nearly 200 years earlier when the scholar and economist the Reverend Thomas Malthus concluded in *An Essay on the Principle of Population* that ‘the power of population is indefinitely greater than the power in the earth to produce subsistence for man.’

He set out a general law of population: that it necessarily grows faster than the food supply, until war, disease, and famine arrive to reduce the number of people. As it turned out, the last plagues great enough to put a dent in global population had already happened by the time Malthus wrote. World population hasn’t fallen since the Black Death of the 14th century.

Today, our numbers are growing by about 80 million each year and both Malthus’s balancing act and Ehrlich’s apocalyptic vision have yet to come about, on a global scale at least, although the evidence is that we have already moved beyond sensible limits to natural resource exploitation.

Down the centuries our growth has been accompanied by new ways of feeding ourselves that have been more efficient – in the short term at least – from the discovery of crops such as corn and the potato in the New World, to the development of chemical fertilisers.

The ‘green revolution’ of the last century, courtesy of the advent of high-yield seeds, irrigation, pesticides, and fertilisers, boosted grain production in the areas it was implemented, bringing relief from hunger to large areas of Asia in particular.

The subsequent soil degradation, however, linked to the intensive practices it employed and water-resource depletion, raises major questions about the longer-term sustainability of the techniques used.

The installation of sewers and recognition of the importance of clean water, meanwhile, meant that in many major cities, disease ceased to cut large swathes through the population.

Better nutrition and sanitation, along with the invention of vaccines and antibiotics, doubled life expectancy in richer countries, from 35 years to 77 today.

With the help of agencies such as the World Health Organization (WHO) and UNICEF, life expectancy also

went up across the developing world. In India today it has risen to 64, from 38 in 1952, while over the same period in China it has gone up from 41 to 73.

Millions of people in developing countries who would at one time have died in childhood have survived to have children themselves, proving the merchants of doom wrong in the process, at least for the time being.

### The problem with prosperity

For many, better health has come with prosperity undreamt of by their forebears. And with that prosperity has come a taste for richer and more refined foods – aided and abetted by companies persuading us that we have an ever-expanding array of ‘needs’.

Ironically, people’s desire for a tasty, varied diet, replete with meat and dairy products and blemish-free exotic fruit and vegetables, is now one of the threats to the planet’s ability to support everyone.

Current consumption patterns by those with money to spare are unsustainable, a situation steadily worsening as more and more people in emerging economies join the middle classes and live the sort of lifestyles that we in the rich world take for granted.

A snapshot of world consumption was published in January this year in a report by the UK government’s Department for Business, Innovation and Science’s Foresight Project on Global Food and Farming Futures.<sup>16</sup>

Called *Trends in Food Demand and Production*, it states: ‘Increasing affluence in low-income countries and emerging economies will drive demand even higher, leading to changes in both the calorific quantity and composition of the diet.’

‘Some of these changes in demand will amplify the impact of increasing population growth and drive demand for food higher still.’

The report shows how patterns of food consumption have changed substantially in high-income, and, increasingly, in emerging, economies in recent decades, driven by diverse factors such as convenience foods, smaller households, and changes in supply chains and retailing.

It notes: ‘Much less food is purchased in raw form; more is portioned, prepared and packaged, increasingly for simple and rapid cooking, from package to plate.’

‘These changes have been brought about through demographic, employment and income shifts, and increasingly sophisticated product and brand development and promotion, with a greater focus on food engineering, visual and flavour enhancement and other means of creating desirable and addictive consumption experiences.’

140%

The increase in soybean production required in 2050 to meet rising demand for animal feed

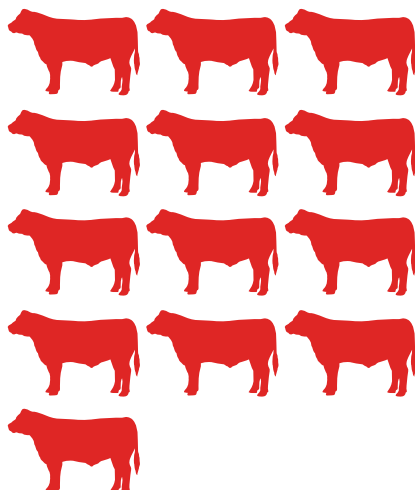
FAO projection

### Meat consumption increases since 1981

Brazil:  
3-fold  
increase



China:  
13-fold  
increase



These changes in diet are driving a shift towards processed, higher-value foods that are often of lower nutritional value, and towards livestock products, the rearing of which has absorbed far more calories in animal feed than is then passed on to the human consumer in the animal's meat.

According to FAO 2009 statistics, there is a strong correlation between rising gross national income in emerging economies, and their growing desire to eat meat. Overall, the tastes of the new urban middle classes are distinctly carnivorous.<sup>17</sup>

Meat consumption has been rising steadily for years, increasing since 1961 by 74 per cent. Much of this has been in Asia, particularly China, where the increase has been 13-fold. In Brazil, the rise is three-fold.

The rise is not as marked in India where vegetarianism has cultural and religious significance. Even there, however, Ashok Gulati, chairman of the Indian government's Commission for Agricultural Costs and Prices, said in March: 'The exploding middle class is increasingly eating fruit and vegetables, milk, eggs, meat and fish...'

Meat consumption in Africa, meanwhile, remains almost static, although the middle class there is now growing.<sup>18</sup>

Based on projections published by, but not necessarily endorsed by, the FAO, meat consumption is expected to rise yet further from a global average of 37kg per person per year at present to 52kg in 2050.<sup>19</sup>

To meet this demand, annual meat production will need to rise more than 200 million tonnes to 470 million tonnes, and there would also have to be substantial increases in the production of 'animal concentrate feeds'.

For example, some 80 per cent of the additional 480 million tonnes of maize produced annually by 2050 would be for animal feed, and soybean production would need to increase by 140 per cent to 515 million tonnes in 2050 for the same reason.

In addition to this, the global cattle population may have to increase from 1.5 billion to 2.6 billion between 2000 and 2050, and the global goat and sheep population from 1.7 billion to 2.7 billion.

As a result, grazing intensity is projected to increase, resulting in considerable intensification of livestock production in the humid and sub-humid grazing systems of the world, particularly in Latin America and the Caribbean.

Such an expansion will result in a move from smallholder mixed farms towards large-scale, specialised industrial production systems, according to the Foresight Project's report.<sup>20</sup>

It also says, however, that although livestock production can be good for local farming communities, particularly in poor countries, with the animals feeding on crop wastes and providing animal dung for fertiliser, building construction and an energy source for cooking, the area of land required to support intensive grazing of animals can be substantial if the quality of the vegetation is low. Stocking densities that are too high can rapidly result in ecosystem degradation and desertification in arid regions.<sup>21</sup>

According to the FAO, it takes 1,000-2,000 litres of water to produce just one kilo of wheat, and 13,000-15,000 litres to produce one kilo of grain-fed beef.<sup>22</sup>

All that, of course, will be a long way from the sight of the new, urban middle classes wanting their share of the good life. For that is where most of the world's population will live – the big city, a long way from where food is produced.

'All of the growth in the world's population will take place in urban areas,' says the FAO. 'By 2050 more than 70 per cent of the world's population is expected to be urban, [and] urbanisation will bring with it changes in lifestyles and consumption patterns.'<sup>23</sup>

# 70%

The proportion of the world's population living in cities in 2050

FAO projection

## Not all gloom and doom

To summarise, it seems that the planet is already failing to cope with the environmental damage inflicted by humans, disproportionate amounts of which are done by the rich minority and suffered by the poor majority.

The addition of more people living western lifestyles can only make things more unsustainable – and hasten the arrival of yet more terrible consequences which, as now, will fall disproportionately on people living in poverty.

In an increasingly crowded, globalised and environmentally exhausted world, however, it seems likely that rich countries will find it increasingly difficult to insulate themselves from the damage they cause and the suffering that comes with today's deep inequalities.

Will we and our political leaders be capable of acting on this – a moral challenge and a threat to our futures – or will we choose to ignore such uncomfortable problems until it is too late?

The outlook appears unrelentingly bleak, but according to both the FAO's *How to Feed the World in 2050*, and the UK-government-supported *The Future of Food and Farming* report, the end of the world does not have to be nigh.

The FAO report says there was consensus among experts who attended its conference that it would be possible to produce enough food in 2050 to meet the needs of 9 billion people, but that certain conditions had to be met and policy decisions taken.<sup>24</sup>

Two conditions were essential. One is increased investment in research and development for sustained productivity growth, reforms, a focus on environmental services and sustainable resource management.

The other is to ensure that policies don't simply focus on supply growth, 'but also on access of the world's poor and hungry to the food they need to live active and healthy lives'.

Ensuring food security, it says, would be closely tied to improved stewardship of natural resources as 'major reforms and investments are needed in all regions to cope with rising scarcity and degradation of land, water and biodiversity and with the added pressures resulting from rising incomes, climate change and energy demands'.

*The Future of Food and Farming* report, meanwhile, states: 'Although the challenges are enormous there are real grounds for optimism. It is now possible to anticipate a time when global population numbers cease to rise; the natural and social sciences continue to provide new knowledge and understanding; and there is growing consensus that global poverty is unacceptable and has to be ended.'<sup>25</sup>

The sentiment echoes a paper published by the American Association for the Advancement of Science. Like all the others mentioned, it goes into great detail about possible solutions to constrain and direct human impact on the environment, and concludes: 'There is no simple solution to sustainably feeding 9 billion people, especially as many become increasingly better off and converge on rich-country consumption patterns.'

'We must avoid the temptation to further sacrifice Earth's already hugely depleted biodiversity for easy gains in food production, not only because biodiversity provides many of the public goods on which mankind relies but also because we do not have the right to deprive future generations of its economic and cultural benefits.'

'[These challenges] will require a revolution in the social and natural sciences concerned with food production, as well as a breaking down of barriers between fields. The goal is no longer simply to maximise productivity, but to optimise across a far more complex landscape of production, environmental, and social justice outcomes.'<sup>26</sup>

**Christian Aid is often asked where it stands in the population debate. In brief, we wholly reject any approach that involves coercing couples to have fewer children than they want. We believe that women and men should have an effective choice over the number and timing of their children, which millions currently do not. Pre-requisites for such choice include access to contraception and wider reproductive healthcare, including healthcare for women during pregnancy and childbirth, as well as women's access to secondary education and protection of their right to control their own bodies.**

# ENDNOTES

- 1 'Gaia scientist to be OPT patron', Optimum Population Trust press release, 26 August 2009, [optimumpopulation.org/releases/opt.release26Aug09.htm](http://optimumpopulation.org/releases/opt.release26Aug09.htm)
- 2 'The population myth', George Monbiot's website, 29 September 2009, [monbiot.com/2009/09/29/the-population-myth/](http://monbiot.com/2009/09/29/the-population-myth/)
- 3 'George Monbiot, *The Guardian and population*', Jonathan Porritt's blog, 6 October 2009, [jonathonporritt.com/pages/2009/10/george\\_monbiot\\_the\\_guardian\\_po.html](http://jonathonporritt.com/pages/2009/10/george_monbiot_the_guardian_po.html)
- 4 *The Implications of Population Growth and Urbanization for Climate Change*, D Satterthwaite, 2009, published in *Population Dynamics and Climate Change*, edited by JM Guzmán, G Martine, G McGranahan, D Schensul and C Tacoli. New York: UNFPA; London: IIED, pp51-53, [pubs.iied.org/pdfs/G02648.pdf](http://pubs.iied.org/pdfs/G02648.pdf)
- 5 'New Year's resolutions for Africa: what can rich countries do this year to help reduce poverty in sub-Saharan Africa?' Blog by Laura Kelly, ONE, 11 January 2011, [one.org/blog/2011/01/11/new-year%E2%80%99s-resolutions-for-africa-what-can-rich-countries-do-this-year-to-help-reduce-poverty-in-sub-saharan-africa/](http://one.org/blog/2011/01/11/new-year%E2%80%99s-resolutions-for-africa-what-can-rich-countries-do-this-year-to-help-reduce-poverty-in-sub-saharan-africa/)
- 6 *The Future of Food and Farming*, Government Office for Science, London, 2011, [bis.gov.uk/assets/bispartners/foresight/docs/food-and-farming/11-546-future-of-food-and-farming-report.pdf](http://bis.gov.uk/assets/bispartners/foresight/docs/food-and-farming/11-546-future-of-food-and-farming-report.pdf)
- 7 *Hunger in the Contemporary World*, Amartya Sen, Lamont University Professor, and Professor of Economics and Philosophy, Harvard University, and Honorary Fellow, London School of Economics and Political Science, November 1997, p23, [eprints.lse.ac.uk/6685/1/Hunger\\_in\\_the\\_Contemporary\\_World.pdf](http://eprints.lse.ac.uk/6685/1/Hunger_in_the_Contemporary_World.pdf)
- 8 *Domesticating the World: Conversion of Natural Ecosystems*, World Resources Institute, September 2000, [earthtrends.wri.org/features/view\\_feature.php?theme=8&fid=34](http://earthtrends.wri.org/features/view_feature.php?theme=8&fid=34)
- 9 'Another inconvenient truth: the world's growing population poses a Malthusian dilemma', by David Biello, *Scientific American*, October, 2009, [scientificamerican.com/article.cfm?id=growing-population-poses-malthusian-dilemma](http://scientificamerican.com/article.cfm?id=growing-population-poses-malthusian-dilemma)
- 10 Ibid.
- 11 *American Association for the Advancement of Science Atlas of Population and Environment*, 2000, Foreword by Peter Raven, [atlas.aaas.org/index.php?sub=foreword](http://atlas.aaas.org/index.php?sub=foreword)
- 12 *The Debt of Nations and the Distribution of Ecological Impact From Human Activities*, Srinivasan et al, published online 22 January 2008, *Proceedings of the National Academy of Sciences*, [pnas.org/content/105/5/1768.full](http://pnas.org/content/105/5/1768.full)
- 13 United Nations Environment Programme, *Global Environment Outlook*, [unep.org/geo/geo4.asp](http://unep.org/geo/geo4.asp)
- 14 *Human Development Report 2007-8*, United Nations Human Development Programme, [hdr.undp.org/en/statistics/data/climatechange/planets/](http://hdr.undp.org/en/statistics/data/climatechange/planets/)
- 15 See note 12.
- 16 Department for Business, Innovation and Science, Foresight Project on Global Food and Farming Futures, *Trends in Food Demand and Production 2011*, [bis.gov.uk/assets/bispartners/foresight/docs/food-and-farming/synthesis/11-621-c1-trends-food-demand-and-production.pdf](http://bis.gov.uk/assets/bispartners/foresight/docs/food-and-farming/synthesis/11-621-c1-trends-food-demand-and-production.pdf)
- 17 FAO, FAOSTAT 2009, [faostat.fao.org/](http://faostat.fao.org/)
- 18 *How to Achieve Food Security*, Ashok Gulati, India Journal, 17 March 2011, IndiaRealtime website, [blogs.wsj.com/indiarealtime/2011/03/17/india-journal-how-to-achieve-food-security/](http://blogs.wsj.com/indiarealtime/2011/03/17/india-journal-how-to-achieve-food-security/)
- 19 *The Resource Outlook to 2050 – how much do land, water and crop yields need to increase by 2050?* Paper by Jelle Bruinsma, presented at FAO Expert Meeting 24-26 June, Rome, on 'How to Feed the World In 2050', p4-5, [ftp://ftp.fao.org/docrep/fao/012/ak971e/ak971e00.pdf](http://ftp.fao.org/docrep/fao/012/ak971e/ak971e00.pdf)
- 20 See note 16.
- 21 See note 16.
- 22 *Turning the Tide against Water Scarcity*, by FAO Director-General Dr Jacques Diouf, March 21, 2007, [fao.org/english/dg/oped/water\\_scarcity.html](http://fao.org/english/dg/oped/water_scarcity.html)
- 23 *How to Feed the World in 2050*, FAO, [fao.org/fileadmin/templates/wsfs/docs/expert\\_paper/How\\_to\\_Feed\\_the\\_World\\_in\\_2050.pdf](http://fao.org/fileadmin/templates/wsfs/docs/expert_paper/How_to_Feed_the_World_in_2050.pdf)
- 24 Ibid.
- 25 See note 6.
- 26 'Food security: the challenge of feeding 9 billion people', *Science*, January 2010, [sciencemag.org/content/327/5967/812.full](http://sciencemag.org/content/327/5967/812.full)



# AGRICULTURE SUSTAINABLE SOLUTIONS

Support for smallholders is key to tackling hunger

Christian Aid/William Anderson

Farmer Albert Nkomo looking out over his fields of successful crops, grown after training from Christian Aid partner the Zimbabwe Project Trust (ZimPro) in the drought-prone southern province of Matabeleland

# 30%

Predicted fall in cereal yields in south Asia by the middle of the century due to climate change

A recent 14-page supplement on food security in the British magazine *The Economist* includes a bald assertion. The reaction against intensive farming is, it says, 'a luxury of the rich'.<sup>1</sup>

'Traditional and organic farming could feed Europeans and Americans well,' it adds. 'It cannot feed the world.'

This argument has long been used by major food producers to justify the scale of their operations, which have left large swathes of land degraded and underproductive while adding hugely to humankind's carbon footprint.

However, an increasing number of agencies have recently begun to re-examine the contribution small farmers could make, with the right support, to the food security of their countries.

Marginalised farmers have long been locked in a cycle of low productivity. Constraints, including lack of assets, weak market power, and the fact that the benefits of rising prices are too often captured by those higher up the market chain, make it difficult for them to respond to the opportunity of higher food prices by increasing production.

Climate change now poses a major threat to the amount they can produce, with predictions that 29 African countries could face a loss of around 35 million tonnes in potential cereal production, while cereal yields in south Asia could fall by up to 30 per cent by the middle of the century.<sup>2</sup>

As seen elsewhere in this report, land degradation and water depletion pose major threats to people's ability to produce nutritious food, while increases in the price of oil have had a major knock-on effect on the cost of a key 'input' – fertiliser. Early in 2008, some were 160 per cent more expensive than in the same period the previous year.<sup>3</sup>

Most small farmers have to buy food for their own consumption anyway, not least because, in recent years, governments, donors and international financial institutions have cut investment in food production in developing countries.

Some too have found themselves forced off the land to make way for cash crops for export (see the chapter on land grabs, p39). Too frequently, the necessary balance between ensuring public food supplies and pursuing private wealth has not been properly struck, leaving much of the population, including farmers, having to rely on imported foods especially in times of shortage.

The scale of disinvestment has been acute. As long ago as 2002, Andrew Natsios, a former director of USAID, said agriculture had 'basically been de-funded'

by all donor agencies and all of the international banks in what was 'perhaps the most devastating mistake made by the northern countries and the international financial institutions in the past 15 years'.<sup>4</sup>

In Africa, for example, overall donor funding for the sector has halved since the early 1980s, while overall development aid to the continent increased by 250 per cent.<sup>5</sup>

**Recent research demonstrates that agricultural growth is twice as effective in reducing rural poverty as growth in other sectors**

African governments have equally neglected the sector, with average spending on agriculture for 31 African countries in 2003 at 5.6 per cent of total budgets.<sup>6</sup> Even in Asia – where the Green Revolution was underpinned by strong state investment – average spending fell from 8.5 per cent of total budgets in 1990 to about 4 per cent in 2008.

Today, as a result of record food prices and persistent chronic hunger, donors are beginning to think again.

Recent research demonstrates that agricultural growth is twice as effective in reducing rural poverty as growth in other sectors. The World Bank recognises this, stating in its World Development Report 2008 that, after a lull of 25 years, 'it is time to place agriculture afresh at the centre of the development agenda'.<sup>7</sup>

The question is: what kind of agriculture should be encouraged and supported? What kind of agriculture can address poverty and hunger in a world that faces the challenges that confront our planet at present?

Based on growing evidence, Christian Aid argues that there needs to be a shift away from the existing focus of governments and donors on agriculture that relies upon costly chemicals and seed technologies.

The need for such a rethink in terms of how we produce our food was highlighted by the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD), which carried out an exhaustive survey of global agriculture several years ago.<sup>8</sup>

Sharply critical of the way agricultural development had ignored important social and environmental goals, it listed many of the downsides of the current means of food production, which rely on the intensive use





**Market gardening in Zimbabwe – using conservation agricultural techniques helps ensure sustainability**

of external ‘inputs’ such as fertilisers, pesticides and modern varieties of seeds, often in combination with monocropping systems.

Monocropping reduces biodiversity to the extent that it can eradicate local species of plants, while modern seed varieties are often designed to need specific, expensive fertilisers.

The authors, among them some of the world’s foremost experts on agriculture, called for more attention to be paid to small-scale farmers, and recommended the implementation of sustainable agricultural practices, including natural processes, such as crop rotation, and organic fertilisers.

They are not alone in their views. A 2008 report by two UN agencies, UNEP and the United Nations Conference on Trade and Development (UNCTAD), also argued that: ‘Organic agriculture can increase agricultural productivity and raise incomes with low-cost, locally available and appropriate technologies, without causing environmental damage.’<sup>9</sup>

And a recent report by the UN Special Rapporteur

on the Right to Food, which reviewed the kinds of agriculture needed to realise the right to food, advocated ‘agroecology’. That is, the application of ecological science to the study, design and management of sustainable agricultural systems.<sup>10</sup>

Instead of seeking to replicate industrial processes in agriculture, where the focus is on improving seeds and other necessary materials to produce crops and other food, agroecology seeks to enhance agricultural systems through sustainable intensification by mimicking natural processes.

The IAASTD spelled out what was required: ‘Increased attention needs to be directed towards new and successful existing approaches to maintain and restore soil fertility and to maintain sustainable production through practices such as low input, resource-conserving technologies based on integrated management systems and an understanding of agroecology and soil science (for example, agroforestry, conservation agriculture, organic agriculture and permaculture). These technologies minimize the need for high levels of inputs and are socially appropriate approaches to small-scale agriculture.’

Essex University academics Professor Jules Pretty and Rachel Hine have defined sustainable agriculture as a process that ‘seeks to make best use of nature’s goods and services as functional inputs.

‘It does this by integrating natural and regenerative processes, such as nutrient cycling, nitrogen fixation, soil regeneration and natural enemies of pests into food production processes. [And] it minimises the use of non-renewable inputs (pesticides and fertilizers) that damage the environment or harm the health of farmers and consumers.’<sup>11</sup>

Crucially, Pretty and Hine then include as a key component the role that farmers themselves have to play. Sustainable agriculture, they explain, ‘makes better use of the knowledge and skills of farmers, so improving their self-reliance. And it seeks to make productive use of social capital – people’s capacities to work together to solve common management problems, such as pest, watershed, irrigation, forest and credit management.’

Christian Aid shares this view. For agriculture to be considered sustainable, three important dimensions – the economic, environmental and social – must be in balance.

Although it has undoubtedly saved lives, the current industrial model of agriculture, referred to in the developing world as the Green Revolution, is unsustainable because it has not established a proper balance between these three elements. Production

# <1%

## Proportion of agricultural research funds devoted to organic farming approaches in the developing world

has tended to triumph over ecology and social equity.

Through farming that is fully sustainable, in which the role of the farmer is supported, productivity can be lifted in the agricultural sectors in Africa and Asia. High yields can be achieved, resources protected, and poverty reduced. The community's 'social capital', meanwhile, will be enhanced.

It is an approach that a number of partner organisations supported by Christian Aid are helping farming communities to implement.

**“ Investment in agriculture needs to be massively increased, with governments and donors meeting pledges already made**

### Reforms crucial

Government buy-in to the process is vital. For while 'agroecology' itself can greatly strengthen the contribution smallholders are able to make to food security, the full potential of such an approach cannot be realised without fundamental reforms taking place far beyond the farmstead.

Investment in agriculture needs to be massively increased, with governments and donors meeting pledges already made. The direction of this spending, however, is as important as the quantity and an increasing proportion should be channelled towards supporting sustainable approaches, including assistance to farmers, particularly in the early years when yields sometimes dip when new approaches are being adopted.

Research funding also needs reorientating. Currently, of the overall agricultural research budget in the developing world, natural resource-related research only makes up 7-13 per cent, while the FAO estimates that less than 1 per cent of agricultural research goes to organic farming approaches.

Governments must make funds and support available for 'farmer-led' research and extension (technical advice) services. This means starting from small farmers' own priorities and knowledge, and finding solutions that fit the realities they face, rather than imposing 'top down' concepts that may be inappropriate.

Public extension services have been desperately under-funded and need to be revitalised. In particular, they need to focus much more on knowledge

dissemination – especially on sustainable agricultural techniques. Farmers must be at the heart of decision making, and involved in new experiments and in the dissemination of findings and new practices.

Fundamental reforms are also needed to give small farmers tenure and rights over the land, water, forests, fisheries and other natural resources on which they rely. For that to happen, governments must implement a fundamental policy shift that puts the interests of poor farmers at the heart of food, land, water and development policy. Insecure land rights are a major challenge and disincentive to any vulnerable farmer seeking to make investments in improvements to farms and farming systems.

Sustainable agriculture, the evidence shows, can help small farmers to increase production. For them to turn this into predictable, profitable income, initiatives are also needed that enable the creation of and access to markets that return fair prices for producers.

Supply chains to point of sale for farmers' produce must also be shortened, as well as strengthened, to provide them with more options as to how they get their produce to market. The contracts they enter into must be enforceable to protect them from richer and more powerful businessmen, and trade policies must also be altered to reduce reliance on imported foods.

Support must also be given to farmers' organisations such as cooperatives that are essential for success – strengthening farmers' economies of scale, their ability to manage contracts, processing facilities and risks, and their negotiating power. (See the Nicaragua case study, p92.)

Farmers will also need support in accessing processing equipment or techniques that will add value to their produce, through drying or milling for example. Storage or packing facilities are also required to enable them to hold back produce at harvest time when there is a glut. To get to market and obtain a good price, they may also need support with transport. Gender inequalities, meanwhile, are a fundamental barrier to the transformation of agriculture. While the majority of poor smallholder farmers are women, most agricultural services are provided by and often for men. Buyers, seed merchants and fertiliser dealers tend to be men, and in many contexts this makes it harder for women farmers to negotiate a fair deal with them. Customary laws and unequal social norms may prevent women from owning land or participating equally in cooperatives, or may push them onto the lowest quality land. Sexist business practices or regulations may make it harder for them to access credit or expose them to harassment.



## “ Closer links must be established between smallholders, climate scientists and agricultural research

Government decisions about agriculture (from the sites for local irrigation projects to national policy) are usually made by men, often with little or no consultation of women farmers. Across all these political, legal, technical, commercial and social fronts, it is essential to identify and counter gender inequalities and other power imbalances from the outset.

The benefits of better farming techniques, and more control over land, access to markets, and gender equality, however, could all be wiped out by natural disasters or the long-term effects of climate change on water supplies and growing seasons.

Farmers' organisations, government agricultural departments and policy makers must understand and address such risks.

For example, farmers need accurate, timely seasonal forecasts to make the right planting decisions, and early warning systems so that they can protect themselves against storms or floods. Communities and governments have to work together on infrastructure and new techniques to protect crops, land, water and other resources from risks.

Sustainable agriculture techniques have a contribution to make, alongside anti-desertification, flood protection and other measures. In addition, agriculture and development planning must also respond to longer-term climate projections and likely temperatures and water availability. For this to happen, closer links must be established between smallholders, climate scientists and agricultural research.

## Methods of sustainable agriculture

### Technique 1: System of rice intensification<sup>12</sup>

One particularly successful example of a sustainable production technique is the System of Rice Intensification (SRI). A new approach, SRI is now in use in 40 countries around the world and is delivering major benefits to smallholder farmers.

Farmers transplant rice seedlings at a younger age and give each plant more space in which to grow in the field. They use compost, manure and mulch instead of chemical fertilisers to nourish the soil. Weeds are controlled mechanically rather than by spraying herbicides.

Instead of keeping the field permanently flooded, as is common in rice cultivation, farmers water the crop at regular intervals, just enough to keep the soil moist. This water management approach helps with root development and allows aerobic soil organisms to develop, increasing soil fertility.

As a result, yields are higher, and water use is lower. This makes SRI suitable for drought-prone and low-rainfall areas, although it does require a reliable system to control the flow of water to the rice field.

Production costs, meanwhile, are on average 20 per cent lower per hectare due to the more limited use or complete absence of fertilisers, and the rice plants are sturdier and better able to withstand high winds, cold spells and drought.



**Burkina Faso: new ways of conserving water and improving soil as taught by Christian Aid partner Réseau MARP**

### Technique 2: Zai pit technology

FAO studies have shown that simple techniques such as planting, or zai pits (which originated in Burkina Faso during the 1980s), can produce huge yield increases.<sup>13</sup>

Zai pits are holes dug close together in crop fields. Farmers plant seeds appropriate to local conditions in these pits.

By digging the pits in advance of the rainy season, they maximise the use of rainfall. Farmers can use much less fertiliser than on conventional fields, as the pits allow them to concentrate application around the plant roots, and minimal tillage helps to reintroduce soil faunas, such as earthworms and termites, which build up soil structure and help with water drainage.

In Tigray province of Ethiopia and in Mali, farmers who used zai pits have managed to treble agricultural yields after just one year.

### Technique 3: Integrated, diversified farming system involving reengineering of farm environment<sup>14</sup>

This system is common in humid, coastal regions of south Asia where there are problems of waterlogging and salinisation. A pond is built on one part of the farm. The earth from the excavation is used to raise the level of vegetable and rice plots. The pond provides a source of irrigation and can be used to raise fish. In the dry season, vegetables can also be grown on terraces around the pond. Embankments are created on which trees, such as banana, coconut, sesbania

and neem, are planted. These trees help to strengthen the banks and produce fruit, fodder and raw materials for biological pest sprays. Saline-tolerant local rice varieties can be grown on any remaining low-lying plots. Small livestock, for example ducks and chickens, can be introduced to help fertilise the soil and feed on pests. Other organic methods of soil fertilisation are also used, including vermicomposting and the planting of nitrogen-rich azolla.

### The benefits

Farmers with whom Christian Aid partners are working have seen marked increases in yields as a result of adopting sustainable practices, and the yield benefits have been verified in a wide range of country and cross-country studies.

For example, in Zimbabwe, Christian Aid partners Dabane Trust (DT) and Zimbabwe Project Trust (ZimPro) monitored the progress of 3,300 farming households that they had supported to introduce 'conservation agriculture'.

Conservation agriculture is a resource-saving approach to agricultural crop production based upon using minimal or no tillage (including through the adoption of zai pits), use of cover crops and mulching to improve soil fertility and water retention, minimal or no use of agrochemicals and diversification of crop species.<sup>15</sup>



Floating nurseries provide a way to grow food despite increasingly severe annual waterlogging/flooding of fields in the marshy central lowlands of Bangladesh

70%

The proportion of farmers with 30-50 per cent yield increases using conservation agriculture

While conservation agriculture is sometimes adopted with the use of chemical inputs, it is an approach that can significantly reduce their use. Fertiliser use can be minimised, because the technique allows for much smaller amounts than are used in conventional approaches to be concentrated around the plant roots. The use of cover crops and mulching to suppress weeds can reduce herbicide requirements; and natural pest control methods such as integrated pest management (IPM) can reduce the need for pesticides.

ZimPro found the majority of farmers practising conservation agriculture realised significant yield increases consistently over the three-year period that they were measured.

During the first year, 70 per cent of farmers realised yield increases of 30-50 per cent for their sorghum, millet and maize, while 10 per cent achieved increases of up to 150 per cent. Farmers saw similar yield gains in the second and third years of the project. They also reported improvements to their household food security.

Another survey in Zimbabwe compared conservation agriculture with conventional farming practices under high, normal and low rainfall situations and showed that farmers were achieving yields of between two to six times those achieved under conventional agricultural practices while also incurring

reduced financial and labour costs because of the lower levels of inputs required.<sup>16</sup>

In Ethiopia, the introduction of composting has significantly increased yields for smallholders in Tigray state. A survey was conducted of nearly 1,000 plots in 19 communities from 2000-2006.<sup>17</sup>

In the Philippines, Christian Aid partner the Panay Rural Development Centre (PRDCI) is working with farmers on agroecological methods in Iloilo province. Farmers recorded a yield increase for rice of 1.16 tonnes per hectare in 2003 compared to the pre-adoption period. The use of synthetic fertilisers and herbicides has been cut by half, compared to the pre-intervention period, and insecticide use by two-thirds, which has also helped to boost farmers' incomes. PRDCI is a member of a nationwide network of rural development institutes. Other members have reported similar yield increases for sugarcane when organic practices were adopted.<sup>18</sup>

Beyond these examples, the evidence that an agroecological approach can achieve significant yield benefits is extensive.

Yield comparisons in a single crop are, of course, only one measure of overall productivity. Sustainable farming systems also improve production by increasing the range of crops cultivated and livestock raised.



**Philippines: farmer Pamfilo Ochea says his organic vegetables are far bigger and more healthy than those grown with commercial fertilisers**



## “ In the developing countries studies, organic yields were 80 per cent higher than for crops grown using the (mainly) low-intensive methods

A 2007 study by a team of US academics, entitled *Organic Agriculture and the Global Food Supply*, compiled data from 293 studies of yields under organic methods versus those under conventional or low-intensive methods.<sup>19</sup>

In developing countries, most of the comparisons were with crops grown using low-intensive, non-Green Revolution methods. The studies covered a wide range of crops being grown in many different soil types and climates, and had been conducted in both developed and developing countries.

The results clearly showed that yields from organic production easily surpass yields from low-intensive production methods in developing countries. In the developing countries studies, organic yields were 80 per cent higher than for crops grown using the (mainly) low-intensive methods.

Another influential study assessing the effects for small farmers of introducing sustainable techniques was conducted by Pretty and Hine at the University of Essex in 2001.<sup>20</sup>

They gathered data from 208 cases in 52 countries. In the projects and initiatives surveyed, a total of 9 million farmers were shown to be involved in sustainable farming. Evidence of yield changes did not exist for all the projects, but for those where it was available, the benefits were clear – for 4.42 million farmers on 3.58 million hectares, per annum household food production grew on average by 1.71 tonnes (a 73 per cent increase).

For a separate category of farmers growing root crops (potatoes, sweet potatoes and cassava) the production gains were even higher (150 per cent). Relative yield increases were higher at lower yields, indicating greater benefits for poor farmers.

Other studies have also found conversion to organic production in tropical Africa has been associated with yield increases.<sup>21</sup>

This expanding body of evidence provides a strong argument to suggest that lifting the productivity of smallholder farming in Africa and Asia can be achieved by helping farmers to adopt sustainable and organic production methods.

## Other benefits

### Incomes and food security

The benefits of sustainable agriculture go far beyond increasing production and yields, which in itself is important but not sufficient. What matters is whether these production successes translate into real, sustained improvement to farmers' incomes and their ability to produce enough food for their families.

Again, the evidence suggests that an increased quantity of food produced per farm tends to have a positive impact on household food security; and that where farmers using low-input approaches are able to get their surpluses to market, their profits are greater because their outgoings on synthetic fertilisers, pesticides and modern variety seeds are lower.

The extent to which farmers are able to improve food production and raise incomes with low-cost, locally available materials and technologies is of particular importance at a time when the cost of such items, along with energy costs, is high. And it is particularly important for the most marginalised farmers, often women, who cannot afford to purchase agricultural products even at the best of times and for whom access to credit is far out of reach.

A well-acknowledged case of agroecological approaches leading to widespread benefits for ensuring adequate food production and incomes is that of Burkina Faso.

During the early 1980s the country was facing a major drought, wells were running dry due to the depleted groundwater table, and the soil had low natural fertility.

A quarter of the rural population were migrating to urban areas. Innovative farmers invented zai pit technology and introduced the practice of using stone bunds (small walls) to improve soil erosion and conserve water.

The widespread adoption of these technologies, facilitated by NGOs, including Christian Aid partner Réseau MARP, is estimated to have helped rehabilitate between 200,000 and 300,000 hectares of land and produce an additional 80,000 tonnes of food per year.<sup>22</sup>

In terms of income benefits, Réseau MARP reports that profits generated by the farmers they are working with in Burkina Faso have been used to pay for millet during the hungry season, school and health fees, taxes and social expenditures. They were also reinvested in agropastoral production (buying goats and sheep) or buying equipment such as grain mills. An IFPRI study also shows clear cash benefits for women, who earn income from the sale of leaves



**“ Problems such as soil compaction, soil erosion, leaching of nutrients from the soil and water loss, which render soil less productive, are minimised when sustainable practices are used**

from regenerated baobab trees, as well as kapok flowers and fruits of shea nut and locust bean.

In a recent study of rice growers in the Philippines, conducted by the rural development network MASIPAG (Farmer-Scientist Partnership for Development Inc), 88 per cent of the organic farmers interviewed said that their ability to access adequate food was 'better' or 'much better' than in 2000, compared to 71 per cent of those in the process of converting from conventional to organic farming and 44 per cent of those using conventional approaches.

### **Environmental benefits**

In addition to the positive impact on yields, reliability of food production and income, low external-input agriculture has clear benefits for the natural resource base upon which long-term food security ultimately depends. The benefits can be seen in the following areas:

- improved soil health
- reduced irrigation demand
- increased biodiversity
- land rehabilitation
- crop resistance to pests and diseases
- lower future greenhouse gas emissions.

Soil management practices, such as minimal tilling, use of cover crops (also known as 'green manure'), composting, application of manure, crop rotations, planting nitrogen-fixing trees and IPM, contribute to building up soil organic matter and the number of beneficial organisms in the soil. (IPM stands for integrated pest management, which involves using natural pest-control methods that allow pesticide use to be cut.)

Chemical fertilisers, on the other hand, contribute to a decline in soil organisms and soil organic matter. The quantity of the latter is crucial because it determines the basic health of the soil: how much nitrogen it can supply to plants, how much water is absorbed, how much porosity there is in the soil, and so on.

Problems such as soil compaction, soil erosion, leaching of nutrients from the soil and water loss, which render soil less productive, are minimised when sustainable practices are used. These practices also lessen the demand for irrigation.

Sustainable agriculture also enables land that has been degraded to be brought back into productive use. This is illustrated by the Burkina Faso case, in which

up to 300,000 hectares of land were restored through zai pit and bunding technologies. In western Tanzania, agroforestry has led to the rehabilitation of land on a similar scale.

Crops that grow in healthier, biologically richer soils are also less vulnerable to pests and diseases. In Indonesia, for instance, pest attacks in rice fields have been reduced by cutting the use of broad-spectrum pesticides, which were killing off the natural enemies of these pests.

By reducing dependence on fertilisers, low external-input agriculture can be a step towards sustainable development for poor countries because nitrogen fertilisers are a major source of greenhouse gas emissions. In addition, techniques such as SRI that do not require rice fields to be flooded for long periods may also help to lower methane emissions.

### **Resilience to natural disasters and climate change adaptation**

Building farmers' resilience to natural hazards such as hurricanes, flooding and drought is a key benefit.

Small-scale producers are particularly vulnerable to such events, which in some instances may be caused by climate change, because their farming systems are often dependent on rainfall and they may rely on only one crop for food.

One way sustainable farming builds resilience is by diversifying production systems to include more than one crop, which reduces the risk of a complete harvest or income loss in the event of one crop failing. Local crop varieties can also be selected that perform well in saline or drought conditions.

Another way is by improving the water retention of the soil through the soil management techniques already mentioned. This reduces the effects of water shortages and drought, which is especially important in semi-arid and arid regions.

For example, in the Sahel, rain-fed crops grown using the zai pit system have been shown to survive for longer in drought conditions. But it also means that during heavy rains, the soil can act as a sponge, absorbing excess water and thereby reducing flood damage to crops and soil erosion.

### **Community empowerment, equity and gender**

Sustainable farming also provides increased opportunities for collective action within farming communities.

Although it does not automatically confer negotiating or political power on them, the most successful examples in Africa and Asia do involve

a strong element of institution-building. This process may involve strengthening forums that already exist at the village level or the creation of entirely new institutions.

Some examples of collective action are:

- community-managed seed selection, storage and exchange – rules and customs are required to operate these systems
- participatory seed breeding
- credit and savings groups
- farmer field schools and people's organisations and networks – for disseminating knowledge about techniques such as IPM
- direct marketing groups and cooperatives
- water-user groups.

### Expanding the scope

It is reasonable to ask whether the examples and benefits documented here are simply a collection of isolated examples. While bringing benefits to some groups of farmers, some might argue, the scope for implementing them more widely is distinctly limited.

However, a number of governments have already successfully 'scaled up' particular agroecological approaches.

- The Indonesian government supported the introduction of IPM from the late 1980s onwards, with the assistance of the FAO. One of the triggers for the policy change was the widespread pest outbreaks that had been occurring on rice fields where pesticides were being sprayed liberally. Insects had developed pesticide resistance, while their natural predators were being killed off by the same chemicals, resulting in major yield losses. The government moved away from subsidising pesticides and instead began an IPM programme. An estimated 1.2 million Indonesian farmers received training between 1989 and 1999 through farmer field schools and their knowledge was passed on to other farmers. The government is saving US\$120m each year by not subsidising pesticides. And, of course, there are the substantial health and environmental benefits of reducing pesticide use.<sup>23</sup>

- The introduction of the SRI technique for growing rice in Cambodia offers a good example of how governments can lend support to sustainable agriculture. Although not originally a government initiative, the Cambodian government began supporting the wider use of SRI in 2005-2006. The number of SRI farming households in Cambodia has grown from just 28 in 2000 to an estimated 100,000 today – 4.6 per cent of the population. SRI is now being practised (albeit not exclusively) in one in every five Cambodian villages.<sup>24</sup>
- In Tigray state in Ethiopia, the local government Bureau of Agriculture and Rural Development has adopted natural composting since 1998. By 2007, at least a quarter of the farmers in the region were making and using compost. Between 2003 and 2006, grain yield for the region almost doubled from 714 to 1,354 thousand tonnes and since 1998, there has also been a steady decrease in the use of chemical fertiliser from 13,700 to 8,200 tonnes. The approach is now being promoted in other regions of the country.<sup>25</sup>

These kinds of examples are promising and have made real impacts, but none of these countries has yet put sustainable agriculture at the heart of their policy frameworks.

In most cases, efforts to scale up such approaches have been impeded by a number of barriers, institutional, economic and political, already mentioned in this chapter. These all need to be addressed if these approaches are to be adopted on a greater scale.

## Case study

### Nicaragua

## Community benefits of the coffee cooperative



Christian Aid/Tom Piston

**Farmer Gustavo Talavera, a coffee farmer in the Soppexcca cooperative in Nicaragua, says: 'We struggle so that the new generation, the children, are able to steer this boat.'**

**G**ustavo Talavera began helping to farm the steep, unforgiving slopes of the Nicaraguan highlands when he was just six years old. 'In those days we worked all day for just half a plate of food', he recalls, perched on his hammock in the hills above Jinotega, more than 1,000 metres above sea level.

Now 55 and with eight children of his own, he has managed to acquire a small plot of land to grow food for his family and coffee for sale.

But he has never learned to read or write, and is determined that his children and others in the community have a better start. 'Working for no salary,' he says, 'that beats a person down.'

Coffee can be grown on small plots of poor-quality land and, with high demand both nationally and internationally, subsistence farmers such as Talavera grow it as a cash crop.

But the odds are stacked against

them when it comes to negotiating a fair price. With hundreds of thousands of producers in the country, and fewer than a dozen major buyers, lone smallholders have no bargaining power.

The cooperative to which Talavera and 650 other smallholders belong, however – which Christian Aid has supported for the past decade – has changed all that.

Called Soppexcca, it is a graphic example of enterprise-based development, illustrating how, with a little capital and a lot of organisation, the odds can be restacked in the producer's favour.

Talavera says that he and other cooperative members now earn on average 25 per cent more for their coffee in real terms than they did when they tried to negotiate the price individually.

Eight per cent of the profits go into a social fund for the community – helping fund local schools is a top priority. The rest is spent on

facilities and services offered by the cooperative, with what's left shared between members.

In a country where more than half of the population live on less than two dollars a day, initiatives such as Soppexcca make a real difference.

With the cooperative able to pay for training, farmers have reduced production costs. For example, by analysing the composition of the soil and changing the way they farm accordingly, they have each been able to save hundreds of dollars on fertiliser each year.

They have also been able to 'add value' to the crop with a processing plant that takes the coffee to export standard, including roasting and packaging, which is usually done overseas.

Just as importantly, they have been able to dispense with local 'middlemen' and negotiate directly as a cooperative with major international coffee buyers.

Even when prices reached an all-time high in early 2011, the cooperative was able to negotiate a premium price.

The cooperative also provides space for farmers to store their crop, rather than having to sell it on immediately after harvesting, when there is a glut.

'This community had nothing before,' says Talavera. 'The price of coffee was very low, and the only "school" for children was sitting in the dirt in my backyard.'

'Since Soppexcca was set up we have seen many improvements – the school and the health centre in particular. Building materials were secured through the cooperative and then parents got together and did the work.'

'I did not have the opportunity to go to school, so I tell my children to study and do what I couldn't. We struggle so that the new generation, the children, are able to steer this boat.'

## GM

# Hope for the future, or Pandora's box?

In the debate over how the planet is to feed itself in future, one option often cited is genetic modification (GM) – changing the DNA of plants to produce higher yields.

By inserting, removing or altering genes, the intention is to make plants resistant to insects and pests; bacterial, fungal and viral diseases; and unfavourable growing conditions such as drought or frost.<sup>1</sup>

They could also be modified to contain nutrients and vaccines – in theory at least – to improve public health.<sup>2</sup>

Such claims about the potential benefits of GM crops do not go unchallenged. GM has many critics who say the dangers far outweigh the suggested gains, which anyway have yet to be substantiated.<sup>3</sup>

Perhaps the most comprehensive assessment of world agriculture to date was carried out several years ago by IAASTD for the World Bank and UN agencies. The work took more than four years and involved 400 scientists and development experts from 80 countries.<sup>4</sup>

The IAASTD found that data based over several years on a number of GM crops indicated highly variable 10-33 per cent yield gains in some places, and yield declines in others.

'The pool of evidence of the sustainability and productivity of GMOs [genetically modified organisms] in different settings is relatively anecdotal, and the findings from different contexts are variable, allowing proponents and critics to hold entrenched positions



AP Photo/Eraldo Pires

**Soy plants in vitro at the Genetic Resources and Biotechnology Center in Brazil**

about their present and potential value,' said its final report.

'Some regions report increases in some crops and positive financial returns have been reported for GM cotton in studies including South Africa, Argentina, China, India and Mexico. In contrast, the US and Argentina may have slight yield declines in soybeans, and also for maize in the US.'

Again according to IAASTD, 'studies on GMOs have also shown the potential for decreased insecticide use, while others show increasing herbicide use.'

It found that GM cultivation is highly concentrated in a few countries: nearly three-quarters in the US and Argentina alone, and 90

per cent in those two plus Brazil and China.

And while GM crop cultivation has increased by double-digit rates for the past 10 years, more than 93 per cent of cultivated land supports conventional agriculture.

By 2015 developing countries are expected to surpass industrialised countries in their use of GM.<sup>5</sup>

Doubt about GM's ability to increase yields is not the only worry about its use. The IAASTD warned that GMOs in the human food-supply chain in the form of animal feed 'might threaten human health'. GM's potential environmental impact is also a cause for concern, with the evidence again patchy.

The IAASTD found that 'no



long-term environmental and health-monitoring programs exist to date in the countries with the most concentrated GM crop production. Hence, long-term data on environmental implications of GM crop production are at best deductive or simply missing and speculative.'

There is also a concern that the introduction of GM reinforces genetic uniformity, presenting a threat to crop biodiversity – the cornerstone of future agricultural research.<sup>6</sup> Furthermore, there is a risk of genes flowing into wild relatives of crops and generating weeds, pests and diseases that are more difficult to manage.

The governance of GM food is another key issue. The Intellectual Property Rights regime is such that research and development of new GM products are driven by a handful of huge multinationals, and whether their interests align with those of farmers in poor countries is open to question.

The worry is that as GM becomes increasingly widespread, small-scale farmers will become dependent on external inputs, especially GM seed, and any specialist fertiliser it might require, making them vulnerable to changes in supply and price.

Broadly speaking, there are two kinds of interventions that can improve agricultural productivity – new products such as modern-variety seeds and fertilisers, and new processes, or techniques, such as soil conservation.



Bags of genetically modified soybean seeds in St Louis, Missouri

Products are produced by companies which work hard to 'sell' them. However, new or reintroduced techniques, which are not entities that can be sold but may well be more important to the prospects of reaching more sustainable agriculture, need at least equal promotion.

Christian Aid's view is that, if at some stage health and environmental concerns can be convincingly addressed, GM *might* be useful to poor farmers if the process of developing them is driven by farmers' own needs and priorities. But poor farmers don't have the buying or negotiating power to induce companies to create the kind of seeds with characteristics that they need or at a price they can afford, or to influence government and donor policies to make this happen, so it is not clear if or when either condition is likely to be met.

In the meantime, the agroecological techniques outlined in this chapter, would, if adopted globally, make a major contribution to improving agricultural productivity.

# ENDNOTES

Much of this chapter has come from a forthcoming Christian Aid report by Ben Hobbs and Sophie Powell on the benefits of sustainable agriculture to small farmers in Africa and Asia.

- 1 'The 9 billion-people question', *The Economist*, 24 February 2011, [economist.com/node/18200618?story\\_id=18200618](http://economist.com/node/18200618?story_id=18200618)
- 2 *Background Document*, Special Event on Impact of Climate Change, Pests and Diseases on Food Security and Poverty Reduction, FAO, 31st Session of the Committee on World Food Security 23-26 May 2005, [ftp://ftp.fao.org/docrep/fao/meeting/009/j5411e.pdf](http://ftp.fao.org/docrep/fao/meeting/009/j5411e.pdf)  
Plus: Intergovernmental Panel on Climate Change, *Fourth Assessment Report, Climate Change 2007: Working Group II: Impacts, Adaptation and Vulnerability*
- 3 *The State of the Agricultural Commodity Markets 2009: High Food Prices and the Food Crisis Experiences and Lessons Learned*, FAO, [ftp://ftp.fao.org/docrep/fao/012/i0854e/i0854e.pdf](http://ftp.fao.org/docrep/fao/012/i0854e/i0854e.pdf)
- 4 'Press briefing by Andrew S. Natsios, USAID administrator', at Monterrey Conference Monterrey, Mexico, March 21, 2002, [usaid.gov/press/spe\\_test/speeches/2002/sp020321.html](http://usaid.gov/press/spe_test/speeches/2002/sp020321.html)
- 5 'Funding agriculture: not "how much?" but "what for?"', *ODI Opinion Paper 86*, Lidia Cabral, Overseas Development Institute, October 2007, [odi.org.uk/resources/download/530.pdf](http://odi.org.uk/resources/download/530.pdf)
- 6 *Africa's Smallholder Farmers: Approaches that Work for Viable Livelihoods*, African Smallholder Farmers Group (ASFG), [farmafrica.org.uk/Final%20ASFG%20-%20Africas%20smallholder%20farmers.pdf](http://farmafrica.org.uk/Final%20ASFG%20-%20Africas%20smallholder%20farmers.pdf)
- 7 *Agriculture for Development*, World Development Report 2009, World Bank, [siteresources.worldbank.org/SOUTHASIAEXT/rces/223546-1171488994713/3455847-1192738003272/WDR\\_Final.pdf](http://siteresources.worldbank.org/SOUTHASIAEXT/rces/223546-1171488994713/3455847-1192738003272/WDR_Final.pdf)
- 8 *Agriculture at a Crossroads*, Synthesis Report of International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD), 2009, [agassessment.org/reports/IAASTD/EN/Agriculture%20at%20a%20Crossroads\\_Synthesis%20Report%20\(English\).pdf](http://agassessment.org/reports/IAASTD/EN/Agriculture%20at%20a%20Crossroads_Synthesis%20Report%20(English).pdf)
- 9 *Organic Agriculture and Food Security in Africa*, UNEP/UNCTAD, 2008, [unctad.org/en/docs/ditcted200715\\_en.pdf](http://unctad.org/en/docs/ditcted200715_en.pdf)
- 10 *Agroecology and the Right to Food*, Report submitted by the Special Rapporteur on the Right to Food, Olivier De Schutter, to UN General Assembly 20 December 2010, [srfood.org/images/stories/pdf/officialreports/20110308\\_a-hrc-16-49\\_agroecology\\_en.pdf](http://srfood.org/images/stories/pdf/officialreports/20110308_a-hrc-16-49_agroecology_en.pdf)
- 11 J Pretty and R Hine, *Reducing Food Poverty with Sustainable Agriculture: A Summary of New Evidence*. Final Report from the SAFE-World Research Project, Interdisciplinary Centre for Environment and Society, University of Essex, February 2001, [essex.ac.uk/ces/esu/occasionalpapers/SAFE%20FINAL%20-%20Pages1-22.pdf](http://essex.ac.uk/ces/esu/occasionalpapers/SAFE%20FINAL%20-%20Pages1-22.pdf)
- 12 *The System of Rice Intensification (SRI) as a System of Agricultural Innovation*, Norman Uphoff, Director of the Cornell International Institute for Food, Agriculture and Development (CIIFAD) at Cornell University, USA, [future-agricultures.org/farmerfirst/files/T1c\\_Uphoff.pdf](http://future-agricultures.org/farmerfirst/files/T1c_Uphoff.pdf)
- 13 *Optimizing Soil Moisture for Plant Production, The Significance of Soil Porosity*, FAO Soils Bulletin 79, Francis Shaxson and Richard Barber, FAO Consultants, Land and Plant Nutrition Management Service, 2003, [fao.org/DOCREP/006/Y4690E/Y4690E00.HTM](http://fao.org/DOCREP/006/Y4690E/Y4690E00.HTM)
- 14 This example is based on the integrated farming model supported in West Bengal, India, by the Development Research Communication and Services Centre (DRCSC), which is a partner of Christian Aid.
- 15 From internal Christian Aid review.
- 16 Figures from International Crops Research Institute for the Semi-Arid Tropics cited in *Farming for the Future, A Guide to Conservation Agriculture in Zimbabwe*, Zimbabwe Conservation Agriculture Task Force, [fao.org/ag/ca/doc/Cons%20Ag%20Manual%20FINAL.pdf](http://fao.org/ag/ca/doc/Cons%20Ag%20Manual%20FINAL.pdf)
- 17 See note 13.
- 18 Data supplied by PRDCL, the Panay Rural Development Centre Inc. Yield for pre-adoption period was 6.49 tonnes. Yield in 2003 was 7.65 tonnes.
- 19 Catherine Badgley et al, 'Organic agriculture and the global food supply', *Renewable Agriculture and Food Systems* 22(2); 86-108, June 2006, [organicvalley.coop/fileadmin/pdf/organics\\_can\\_feed\\_world.pdf](http://organicvalley.coop/fileadmin/pdf/organics_can_feed_world.pdf)
- 20 See note 11.
- 21 For example, Peter Gibbon and Simon Bolwig, *The Economics of Certified Organic Farming in Tropical Africa: A Preliminary Assessment*, DIIS Working Paper no 2007/3, Sub-series on Standards and Agro-Food Exports (SAFE) No. 7, Danish Institute for International Studies, 2007, [diis.dk/graphics/Publications/WP2007/WP2007-3%20til%20web.pdf](http://diis.dk/graphics/Publications/WP2007/WP2007-3%20til%20web.pdf)
- 22 C Reij et al, 'Resilience to drought through agro-ecological restoration of drylands, Burkina Faso and Niger', Case study 2, Annex to *Global Assessment Report*, Partnership for Environment and Disaster Risk Reduction (PEDRR), [pedrr.net/GAR\\_Annex\\_Compiled%20Case%20\\_%20studies.pdf](http://pedrr.net/GAR_Annex_Compiled%20Case%20_%20studies.pdf)
- 23 H van den Berg et al, *Farmer Field Research: An Analysis of Experiences in Indonesia*, FAO Regional Office of Asia and the Pacific, 2004. [share4dev.info/ffsnet/output\\_view.asp?outputID=3120](http://share4dev.info/ffsnet/output_view.asp?outputID=3120)
- 24 Figures from p6, *Report on the Progress of System of Rice Intensification in Cambodia 2007*, Cambodian Centre for Study and Development in Agriculture (CEDAC), 2008. 100,000 is CEDAC's estimate based on the previous growth rates up to 2007. The population figure is based on the number of households measured in the 1998 census (2.19m), [ciifad.cornell.edu/countries/cambodia/index.html](http://ciifad.cornell.edu/countries/cambodia/index.html)
- 25 S Edwards et al, *Impact of Compost Use on Crop Yields in Tigray, Ethiopia*, Natural Resources Management and Environmental Department, FAO, December 2007, [betuco.be/compost/Impact%20of%20Compost%20Use%20on%20Crop%20Yields%20in%20Tigray,%20Ethiopia.pdf](http://betuco.be/compost/Impact%20of%20Compost%20Use%20on%20Crop%20Yields%20in%20Tigray,%20Ethiopia.pdf)

## GM

**1** *The Use of Genetically Modified Crops in Developing Countries*, Discussion Paper, The Nuffield Council on Bioethics, 2003, [nuffieldbioethics.org/sites/default/files/GM%20Crops%20Discussion%20Paper%202004.pdf](http://nuffieldbioethics.org/sites/default/files/GM%20Crops%20Discussion%20Paper%202004.pdf)

**2** Ibid.

**3** '10 reasons why we don't need GM foods', GM Watch, [gmwatch.org/10-reasons-why-we-dont-need-gm-foods](http://gmwatch.org/10-reasons-why-we-dont-need-gm-foods)

**4** *Agriculture at a Crossroads*, Synthesis Report, International Assessment of Agricultural Knowledge, Science and Technology for Development, 2009, [agassessment.org/reports/IAASTD/EN/Agriculture%20at%20a%20Crossroads\\_Synthesis%20Report%20\(English\).pdf](http://agassessment.org/reports/IAASTD/EN/Agriculture%20at%20a%20Crossroads_Synthesis%20Report%20(English).pdf)

**5** '10 percent global rise in biotech crops: study', *Independent*, 27 February 2011, [independent.co.uk/environment/10-percent-global-rise-in-biotech-crops-study-2226841.html](http://independent.co.uk/environment/10-percent-global-rise-in-biotech-crops-study-2226841.html)

**6** Emma Hockridge, 'Uganda's disease-hit banana crops will not be saved by GM science', *The Guardian*, 15 March 2011, [guardian.co.uk/commentisfree/2011/mar/15/banana-disease-gm-natural-farming-uganda](http://guardian.co.uk/commentisfree/2011/mar/15/banana-disease-gm-natural-farming-uganda)



# RECOMMENDATIONS FORMULA FOR THE FUTURE

Christian Aid's purpose is threefold: to expose the scandal of poverty; to root it out in practical ways where we can; and to challenge and change the systems and structures that keep people in poverty



Christian Aid/Sarah Filbey

Lilian Moyo (second from right) and her farming group start a day's work. The women live in the Hope Community outside Bulawayo, Zimbabwe. Lilian has been promoting 'conservation farming' techniques. 'The moment they see it, they want to do it too,' she says of other farmers



This report highlights the scandal of food-related poverty, and presents a number of examples of how Christian Aid, working with partners, seeks its eradication.

Tackling the impact of poverty is not enough; we must also confront those structures and systems that cause it in the first place.

In this report, we examine how poverty is exacerbated, and people's long-term wellbeing undermined, by the systems and structures affecting the production and consumption of food.

Addressing the issues around agriculture and food production in the ways we suggest would help people become more self-sufficient, and support countries in their efforts to banish the spectre of hunger. It would also encourage a shift away from unsustainable production and consumption patterns.

Many factors affect whether households, communities and countries have enough to eat. This gives rise to the need for a broad range of recommendations aimed at various parties that can make a difference: national governments, societies at large, the private sector, the international community – including bilateral and multilateral development donors – and market regulators.

In this section we make some key recommendations relating to sustainable approaches to agriculture and food production; land rights; conflict over resources; the broader economic context; climate change; equitable taxation; and financial market regulation.

The governments of Ireland and Spain are included in our calls for donors to take action, because Christian Aid has an advocacy presence in these two countries as well as the UK.

## Sustainable agriculture

It is essential to support an agroecological approach that will allow small-scale farmers to increase and secure food production through sustainable farming

While smallholder farmers have a central role to play in this process, national governments must create the conditions necessary for them to act effectively. Donors could play a catalysing role but must also ensure that they 'do no harm' – neither creating nor reinforcing obstacles to progress, inadvertently or otherwise.

**National governments** should:

- through their policies, help protect and support people's ability to feed themselves in a sustainable manner
- focus on sustainable models of farming, and specifically on the potential for increasing the scale of agroecological approaches, looking beyond alternative means that depend upon intensive chemicals and 'improved' seeds developed without the involvement of farmers
- support research led by farmers and extension, or advice, services, to allow farmers to develop appropriate knowledge
- address the underlying power imbalances, including gender inequalities, that affect the – predominantly female – smallholder farmers.

**Donors (including the UK, Ireland, Spain and the European Union)** should:

- first and foremost, ensure their interventions do not undermine the case for specific measures outlined above, and in general support national governments to consider how best to pursue long-term sustainable development
- promote investment in agroecology to act as a catalyst and provide ongoing support for country plans for sustainable development
- promote transparency globally around the environmental 'footprint', or cost, of agriculture and other economic sectors
- introduce sustainable agricultural approaches into existing nutrition programmes, to maximise the impact of the latter

- increase support for sustainable, smallholder farming, including appropriate research (into low-cost, sustainable and farmer-led technologies) and extension and forecasting services. Specifically:
  - DFID should meet its commitments to increase spending on agriculture – and set out a plan for ongoing increases as overseas development aid rises – beyond the £1.1bn over three years already promised
  - the EU should, in its review of development policy and in negotiations for its new Multiannual Financial Framework (which will set the budget context for the EU's entire operation in the post-2013 period), ensure the prioritisation of sustainable agriculture and support to small farmers for sustainable approaches
  - all donors should set out plans to allocate 10 per cent of overseas development aid to agriculture and to ensuring the availability of food, to match the 10 per cent commitment made by African governments in the Maputo Declaration of 2003 aimed at supporting the continent's smallholder farmers in the battle against hunger.

## Land rights

Smallholder farmers need secure tenure and rights over the land, water, forests, fisheries and other natural resources on which they rely, in order to support greater economic security and investment in sustainable approaches.

Cooperatives and other community-level mechanisms are key to the sustainable management of these resources, and must be supported to play this role effectively.

**National governments** should:

- place the interests of smallholder farmers at the heart of policy decisions, not only those that relate to food, but also those connected to land, water and wider aspects of development such as resilient infrastructure and disaster preparedness
- ensure that smallholder farmers have secure tenure and rights over land, water, forests, fisheries and other natural resources in order to support greater economic security and investment in sustainable agroecological approaches. Specifically, this may require governments to:
  - support a more equitable distribution of land, the principal asset in agricultural economies. This would help address the deep structural inequalities that exist and set the basis for a new path of sustainable food security and economic resilience<sup>1</sup>
  - recognise and protect farmers' existing land holdings in the face of rising land prices and the 'land grabs' phenomenon
  - facilitate the legal recognition of traditional/customary land use, by reforming and simplifying land-title regulations, and investing in efficient and accountable land-registration processes
  - uphold smallholder farmers' rights and land title through land-market policy, regulation, contract enforcement, and where necessary police and judicial action against land displacement
  - establish and facilitate effective resource management, where there are multiple stakeholders.

**Donors (including the UK, Ireland, Spain and the European Union)** should:

- promote transparency and research, globally, around existing and changing patterns of land ownership
- support research into appropriate ownership and governance of land for sustainable agriculture.

## Conflict

Greater attention must be given to people's inability to access adequate food, both as a cause and a destabilising consequence of conflict.

The terrible toll of conflict is most vividly seen in lives destroyed, but hunger, or its threat, is a further factor. In addition, food shortages, or their threat, can provoke conflict. All stakeholders should pay greater attention to food insecurity (and related land issues) in any engagement with a conflict situation. Those involved in situations of actual or potential violent conflict may not be best placed to step back from the immediate issues, so there are key roles for outside actors.

**Donors** should:

- recognise, in the event of violent conflict, the cost in terms of food security locally and in terms of the effects on neighbouring countries in a conflict-affected region. For example, donors should invest in sustainable agriculture, rather than imported food aid, on a local/regional basis in the aftermath of violent conflict
- prioritise the support of processes of equitable land/natural resource distribution and management, including promotion and protection of smallholders' rights and multi-stakeholder management of resources
- invest in quick, sophisticated political analysis – that includes conflict sensitivity – on an ongoing, rather than ad hoc, basis. This analysis should be used to inform early action to mediate potential conflict over resources, and put sensitivity to and management of conflict risk at the heart of their portfolios
- build the capacity of developing country governments to do *ex-ante*, or before the event, impact assessments that look at potential poverty and social outcomes including in the areas of health, food security and conflict
- ensure that any policy advice, recommendations, conditions or finance they provide to developing countries do not risk generating or inflaming conflicts through, for example, competition for food or land rights.

## Economic context

Domestic economic policy, international trade rules and the behaviour of major companies can powerfully affect smallholder farmers and the prospects for sustainable agroecology, and must be shaped accordingly.

For some businesses at least, this will require a change in core business model to move away from practices that undermine smallholder farmers, unfairly limit the benefits of trade to producer countries, or fail to take environmental effects fully into account. Instead they must move towards a transparent, sustainable model that puts the small producer at the heart of product and market development. Domestic policies and international trade rules must be agreed that support all countries and producers, richer and poorer, to move to sustainable production and consumption patterns.

**National governments** should aim to provide economic policies that support:

- the (re)creation of local and regional markets in staple foodstuffs
- shorter supply chains that enable producers to keep a larger share of the value of their produce, and poor consumers to move away from dependence on imports, thus reducing their vulnerability to global price rises
- the formation and effective functioning of farmers' organisations such as cooperatives that can allow them to compete by improving their economies of scale, negotiating power and ability to manage contracts and risks
- 'value-adding' processes (that improve the product for the customer and make it worth more)
- additional measures to prevent exploitation by middlemen including:
  - contract enforcement
  - the availability of a range of credit and market options.

**The international community (including the UK, Ireland, Spain and the European Union)** should:

- ensure that trade agreements do not restrain governments from protecting their agricultural sectors from subsidised imports and import surges that undercut domestic producers and are a disincentive for them to invest in sustainable production
- promote tax transparency measures that enhance the economic benefits received by food-exporting developing countries.

**Major multinational companies** should:

- meet in full their basic responsibilities, not least with regard to human rights, labour standards, taxation and environmental impact
- commit to full transparency regarding the effects that their whole supply chains have on the environment and society, including monitoring and evaluation of progress in reducing damaging impacts over time and with particular sensitivity to the needs of individual countries and communities involved in operations
- invest in farmer-led research, product and market development, so that their technology and knowledge meets the priorities of smallholders
- invest in research and promotion of techniques to minimise fertiliser and pesticide loss/overuse, and depletion of environmental resources, including water.

**Private and state landowners and those that extract natural resources (for example, loggers and fishing companies)** should:

- respect the rights of smallholder farmers and other food producers and communities with whom they share resources such as land, water and forests
- engage fully and transparently in multi-stakeholder management of these resources, and ensure that their actions do not undermine the food security of these communities currently or in the future.

Finally, new actors are needed to provide the technical and financial support, business development services and links to markets that smallholder farmers need to shift to more sustainable approaches. These are likely to be a mix of farmer-led businesses, government officials, and new/reorientated private-sector actors.

## Climate change

All countries, but developing countries above all others, need certainty about the financial and technological flows, and commitments to cut emissions, that will stem from a global climate-change agreement, in order to be able to plan and implement climate-change action plans at national and local level.

Climate change is hampering people's ability to earn a living and feed themselves across the developing world. The more we delay our response to climate change, the more difficult and costly it will be. A global deal must deliver substantial and predictable finance for adaptation and low-carbon development, including sustainable agriculture practice, so that all countries rich and poor, high emitters and low, have broad certainty about their responsibilities and their opportunities, allowing them to pursue sustainable development.

**The international community** should:

- support the full and fast completion of UNFCCC negotiations around greenhouse gas emissions and climate finance
- commit to emissions cuts to keep global temperature rise well below 2°C, with industrialised countries taking the lead by increasing their emissions reduction targets and their domestic actions to meet these
- provide substantial, predictable and reliable funding for adaptation and low-carbon development, including sustainable agriculture practice
- ensure community engagement in national decision-making so that climate finance and action can deliver sustainable farming practice at a local level
- avoid false solutions, such as agriculture being included in carbon markets, since speculative land acquisition with the aim of accruing carbon credits cannot be viewed as a sustainable answer to climate change, and threatens to undermine small-scale farming on some of the most fertile land.

**National governments** should:

- pursue national plans, based on community engagement, for adaptation and mitigation, as appropriate, with a shift to sustainable agriculture as a key measure.



## Equitable taxation

Greater international transparency and accountability would go a long way towards increasing the available revenues from trade in food.

The scale of illicit financial flows and related tax abuse costs developing countries dearly, in the area of international trade in food as in other goods and services. The measures demanded by Christian Aid's tax campaign are straightforward steps to greater international transparency and accountability. By increasing the information available to governments these steps would help increase available revenues – and also improve the ways those revenues are spent, to the benefit of citizens, because of the established relationship between tax and the strength of governance and political representation.

**The international community, with G20 leadership,** should:

- promote global international financial transparency, not only to reduce the probability of further financial crises, but with particular reference to fighting corruption and tax abuses, including these minimum measures at the international level:
  - greater transparency of all multinational companies (through an international accounting standard requiring country-by-country reporting of key economic activity including operating costs, profits and tax paid)
  - effective information exchange between jurisdictions (a multilateral agreement requiring automatic exchange of tax information)
  - donor support to developing countries in improving their fiscal management through strengthening capacity to collect tax and engage in international cooperation in tax matters. Such support should avoid any harmful policy conditionality.

**National governments** should pursue a fiscal system that:

- is based on transparent and equitable taxation, with particular attention to international tax abuses in trade mispricing
- supports expenditures that (i) guarantee a minimum level of social protection, including against vulnerability to hunger, and (ii) promote a sustainable, long-term economic development path characterised by food security.

This will imply support for the international measures above, as well as clear domestic actions.

## Financial market regulation

The human cost of changes to both global and national market regulation of food commodity markets must be recognised and acted upon.

Policy makers must recognise the responsibilities that interconnected global markets create for national market regulation – above all with respect to food commodity markets. While the effects of regulatory changes to commodity markets on food prices and human hunger have not been confirmed, there is no doubt that such regulatory changes could have grave consequences for people's ability to secure food.

**Policy makers and regulators** with responsibility for globally important markets should:

- commit to carry out a full assessment of the potential human impact of any significant regulatory changes
- continue with research to understand the full human impact of liberalisation over the past two decades, including the creation of commodity index funds, with a view to responding effectively where human costs are established.

## Illicit financial flows

Illicit financial flows are increasingly recognised as a major development issue that includes, but also goes beyond, national regulation and taxation.

Christian Aid is a leading member of the intergovernmental, inter-NGO Task Force on Financial Integrity and Economic Development, which promotes five major recommendations:

- country-by-country reporting by multinational companies
- curtailment of trade mispricing including, but not limited to, abusive transfer pricing
- multilateral agreement requiring automatic exchange of tax information between jurisdictions
- international agreement to make tax evasion a predicate offence for money laundering
- details of beneficial ownership, control and accounts of companies, trusts and foundations to be readily available on public record to facilitate effective due diligence; and explicitly require, and enforce, that financial institutions identify the ultimate beneficial owners or controllers of any company, trust or foundation seeking to open an account.

## Ireland and the Hunger Task Force

Ireland's particular history of famine still resonates today. Along with a commitment to poverty eradication, it led in 2007 to the establishment of the Hunger Task Force.

This body consists of 15 eminent Irish and international figures including leading academics, NGOs, UN bodies and Irish government representatives.

The Task Force Report of 2008<sup>2</sup>, launched jointly by the Irish government and UN Secretary General Ban Ki-moon, continues to provide the policy framework for Ireland's hunger eradication programmes. It identifies three areas as priorities:

- 1** increasing agricultural productivity in Africa
- 2** targeting the prevention of maternal and infant under-nutrition
- 3** changes in governance and leadership priorities.

Many of the recommendations of the Task Force complement those of this Christian Aid report, such as the focus on addressing the particular challenges faced by female smallholder farmers.

In some cases the recommendations go further. For example, Ireland is urged to work towards a target of 20 per cent of its ODA to actions to alleviate and eradicate poverty by 2012, and is adopting a leading role in advocating for other donors to prioritise ODA on hunger-related activities.

# ENDNOTES

**1** In some situations, this may involve land redistribution and/or the rehabilitation and reclamation of degraded agricultural land, to ensure that small farmers have enough land to cross the subsistence threshold. Given historical cases of coercive resettlement, these processes must be farmer-led, taking full account of social and cultural patterns of land-holding and agriculture. However, they must also identify and tackle deep-seated inequalities, especially the legal, cultural and social barriers to women's ownership of land.

**2** [irishaid.gov.ie/article.asp?article=1722](http://irishaid.gov.ie/article.asp?article=1722)

## Acknowledgements

### Editor

Andrew Hogg

### Policy/Economics Editor

Alex Cobham

### Introduction

David Black

### Markets: the trader's song

Alex Cobham, David Black

### Conflict: a hungry man is an angry man

Andrew Hogg

The Lord's Resistance Army

Emma Pomfret

Afghanistan: 30 years of conflict leave millions without food

Johanna Rogers

Gaza: the blockade bites

Johanna Rogers

### Land: the new land grabs

Rachel Baird

Mali: a tale of two land grabs

Rachel Baird

Cambodia: dealing with the legacy of Year Zero

Johanna Rogers

Land grab alternatives: making land deals work for small farmers

Rachel Baird

### Tax: stacking the odds against the poor

Alex Cobham, Sarah Wilson

Guatemala: malnourished children in a lower-middle-income country

Sarah Wilson

### Climate change: the impact on food production

Rachel Baird

India: a new farming revolution

Andrew Hogg

Honduras: cutting carbon and saving rainforest

Sarah Wilson

### Population: the demography of food

David Black, Alex Cobham and Rachel Baird

### Agriculture: sustainable solutions

Ben Hobbs and Sophie Powell

Nicaragua: community benefits of the coffee cooperative

Sarah Wilson

GM: hope for the future or Pandora's box?

Julian Boys

### Editing

Sophy Kershaw, Caroline Atkinson, Louise Parfitt, Carolyn Crawley

### Design

Clare Hill with Txabi Jones and Lauren Gardner

### With thanks to:

Mohamed Adow, Paul Brannen, Jenny Brown, Serena Di Matteo, Alison Doig, Hanan Elmasu, Richard Ewbank, Amanda Farrant, Eric Gutierrez, Nick Guttman, Dan Jones, Alison Kelly, Yacouba Kone, Claire Kumar, Noah Kutukwa, Jude Mackenzie, Sorley McCaughey, Paul Valentin

### In Nicaragua and Guatemala

Alexis Moncada – Christian Aid programme manager

### In Honduras

Claudia Herrera – Christian Aid programme officer

### External

Professor Christopher Gilbert, University of Trento, Italy; Instituto Centroamericano de Estudios Fiscales (ICEFI), Guatemala; Katia Levin, DanChurchAid country manager, Cambodia; Barbara McCallin, the Internal Displacement Monitoring Centre; Murray Worthy, World Development Movement; Mark Curtis; John Kemp.



Hunger, a scourge as old as humankind, has many causes – some the work of nature, others entirely our own fault.

Today, with enough food in the world for everyone, hunger should be history. So why are nearly a billion people still starving?

In this powerful new report, Christian Aid examines the major causes of hunger, including climate change, land grabbing, changing consumption patterns, and conflict.

It highlights growing suspicions that international commodity trading is a major factor pushing the price of food beyond the pockets of the poor

And it identifies what needs to change so communities in need can, once and for all, feed themselves.

**christianaid.org.uk**  
**christianaid.ie**

UK registered charity number 1105851 Company number 5171525  
Scotland charity number SC039150  
Northern Ireland charity number XR94639 Company number NI059154  
Republic of Ireland charity number CHY 6998 Company number 426928

The Christian Aid name and logo are trademarks of Christian Aid  
Poverty Over is a trademark of Christian Aid  
© Christian Aid May 2011 12-119-A

Printed on 100 per cent recycled paper

