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Case study on[1]

Economic Crises and Commodity Dependent LDCs: Mapping the exposure to market volatility and building resilience to mitigate the impact of future crises

ENHANCING FOOD SECURITY THROUGH AGRICULTURAL DEVELOPMENT

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Abbreviations and acronyms

ADS	Agriculture Development Strategy (Lao PDR)
ASDP	Agriculture Sector Development Programme (Tanzania)
ASDS	Agriculture Sector Development Strategy (Tanzania)
CAADP	Comprehensive Africa Agriculture Development Programme
CAP	Common Agricultural Policy (EU)
COMESA	Common Market for Eastern and Southern Africa
DES	Dietary energy supply
EU	European Union
FAO	Food and Agriculture Organisation (of the U.N.)
FCFA	Franc de la Communauté Française d'Afrique (CFA franc)
FEWS NET	Famine Early Warning Systems Network
FRA	Food Reserve Agency (Zambia)
GDP	Gross domestic product
GIEWS	Global Information and Early Warning System
GFRP	Global Food Crisis Response Program
GHI	Global Hunger Index
HA	Hectare
HLTF	High-Level Task Force on the Global Food Security Crisis
IAASTD	International Assessment of Agricultural Knowledge, Science and Technology for Development
ICO	International Coffee Organisation
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
ISHS	International Society for Horticultural Science
LDC	Least Developed Country
LIFDC	Low-Income Food-Deficit Country
NAFRI	National Agriculture and Forestry Research Institute (Lao PDR)
Namboard	National Agricultural Marketing Board (Zambia)
ODI	Overseas Development Institute (U.K.)
ONASA	Office National d'Appui à la Sécurité Alimentaire (Benin)
PDS	Public Distribution System (India)
PSRSA	Plan Stratégique de Relance du Secteur Agricole (Benin)
SONAPRA	Société Nationale de Promotion Agricole (Benin)
Stabex	Système de Stabilisation des Recettes d'Exportation (EU – Export Receipts Stabilisation System)
SRI	System of Rice Intensification
TIC	Tanzania Investment Centre
U.K.	United Kingdom
U.N.	United Nations
UNDP	U.N. Development Programme
UNCTAD	U.N. Conference on Trade and Development
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
US$	United States dollar
WAFC	World Agroforestry Centre
WFP	World Food Programme
WVC	World Vegetable Centre

'Ton' means metric tonne throughout.

Introduction

'Historically, the world rice market has been an unstable and unreliable source of supply.' These are the opening words of a paper published by a senior U.N. researcher in early 2008. He went on to write that since the mid-1980s, 'the world rice market has become much more reliable',[2] but it may fairly be asked if he would use those words now. There is ample evidence that volatility has actually increased in agricultural commodity prices over recent decades, and three years after that statement many people have commented on the instability of the world's cereal markets in general. As another leading agricultural economist has written, '[T]he hope was that deeper markets, more open trading regimes, and wealthier consumers able to adjust more flexibly to price changes had made markets more stable. It turns out this was wishful thinking.'[3]

This paper examines the situation of food security in Least Developed Countries (LDCs) in the light of the huge shock which people have experienced from sharp increases and subsequent fluctuations since late 2007 in the prices of basic cereals quoted on world markets. The shock has been the most severe for the poorest people and the poorest net food-importing countries. It can also have serious consequences for national politics, not just nutrition and livelihoods. For example, the recent uprising in Tunisia began with a vegetable trader's suicide in a neglected agricultural region of the country.[4]

The paper examines the situation most closely in six of the 48 states which the United Nations defines as LDCs,[5] to find out what policies they have used to address the situation, how successful they have been and what other options may be available. The six countries are Benin, Burundi, Tanzania and Zambia in Africa, and Cambodia and Laos in Asia. However, some time is needed to consider and then enact new long-term policies, and even longer to assess their effectiveness, and it is too soon yet to determine for sure whether any long-term changes introduced since 2008 have worked. The best we can do in most cases is to consider whether they address the right issues and what previous experience can tell us about their *likely* effects. That is the approach which this paper will take.

Food security is a complicated issue, and in a paper like this it is not possible to study every aspect of it even for those six countries, let alone the implications for 42 other ones. Inevitably, it is therefore to some extent a summary paper, concentrating mainly on what its author considers to be the most important policy aspects of this complicated issue. Prominent among these are the environmental and ecological questions which link food production with changes in the climate and the soils of tropical developing countries. One issue which is explored is the use of traditional crops and agricultural techniques, many of which have been discouraged since the colonial era, when thinking about tropical agriculture was as it were Europeanised. It should be emphasised that the recommendations made on this subject arise from economic, environmental, agronomic and nutritional considerations. However, the author makes no comment about the relative merits of *preparing* food from different crops, or the pleasures of eating food made from them. He is aware that some of the crops referred to have been disdained in some quarters as of low status or as 'peasant' foods or 'hunger' crops. However, many of the best dishes in the world themselves derive from humble, frequently peasant, origins. The author would like to think that a revival of other neglected foodstuffs would lead to the rediscovery of many fine foods that their countries would then take justified pride in.

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[2] Dawe (2008), p. 41.
[3] Timmer (2010), p. 41.
[4] See the interview (in French) with Mohamed Elloumi, a leading Tunisian agricultural economist, at www.agrobiosciences.org/article.php3?id_article=2970, dated January 18th, 2011.
[5] The LDCs are listed at www.unohrlls.org/en/ldc/related/62/.

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1. What is Food Security?

First of all it is important to define what we mean by food security, since the term is used to mean different things in different contexts.[6] The factors involved in food security are many and varied, and there are almost as many ways to understand the term as there are food security analysts. The general understanding of the phrase owes much to the pioneering work on famines of the Nobel Prize-winning economist, Amartya Sen, who established that there is frequently plenty of food available at times of famine but a section of society does not have access to it. This is reflected in the definition of food security which was agreed at the Food & Agriculture Organisation (FAO)'s World Food Summit in 1996:

> 'Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.'

Food security policy is taken here to have three main elements, in this order of importance:

1. The regular production or assured supply of sufficient nutritious food at places and prices that are accessible to everybody and meet their preferences.

2. Assurance that all citizens have the means to acquire or grow the food they require for a nutritious diet, and sufficient economic robustness to withstand shocks of all sorts, whether they be naturally caused (e.g. a low or lost harvest due to pests, drought or floods), economic (e.g. increases in food prices), personal (e.g. sudden expenditure needs, such as can arise from illness or bereavement), political (e.g. the interruption of supplies because of conflict) or from any other cause. This is a broad understanding of the concept of 'social protection', as applied to food security.

3. Arrangements in place to foresee possible interruptions to food supply and ensure that everybody is adequately fed in the event of such an emergency (this is disaster risk management).

Food security can be achieved in various ways, according to the circumstances. For example, among the richer countries the United Kingdom has not produced all of the food it needs for a very long time. In the late 1930s the U.K. was less than 50% self-sufficient in food. After difficulties in supply during the Second World War, new policies were introduced which raised this to 55 to 60 per cent self-sufficiency by the early 1950s and roughly 80 per cent in the early 1990s. After reforms to European agricultural policy, it has fallen back to 70 per cent or less in recent years. However, except during the Second World War the U.K. has never had a problem of food security, because it could always afford to import enough food to meet its needs. That, indeed, has been the country's policy since the middle of the 19th century.

But few if any LDCs could be called food-secure with such low rates of self-sufficiency, because they are not assured of sufficient export revenue or the ability to borrow enough money to pay for these imports. Similar considerations apply at the level of poor individuals and households. So food security is, as much as anything, an issue of poverty. At the national level, as well as the individual one, Sen's point about access to food is critically important. People, and countries, need to have sufficient purchasing power to meet their food needs. Important questions for food security therefore are always, *whose* access to food is insecure, and even: *who* is poor? Secondly, general security also matters – both from the point of view

[6] This section of the paper draws on work done by its author in 2009 on behalf of the Intergovernmental Authority on Development. See Lines (2009), and other documents of late 2009 listed at www.tomlines.org.uk/page2.htm.

of the state, since both civil and foreign conflicts can interrupt food supplies, and the individual, whose food security is often affected by other forms of insecurity, such as civil unrest, natural disasters or personal misfortune.

Although food security is a simple idea in principle, numerous influences can upset it in practice. In LDCs they can include the following:

- The risky nature of food production and distribution. The climates of many LDCs are arid or semi-arid, and even where not, weather and rain patterns can be unreliable. Soil qualities and biota vary, for example leaving many lowland areas suitable for pasture but not for agriculture, or *vice versa*.

- Pervasive poverty. In all LDCs there is a large proportion of economically or socially vulnerable people, who face difficulty in growing or earning enough to feed their households. This makes them vulnerable to any destabilisation of food supplies, whatever its origin.

- Limited systems of communication, which can inhibit both domestic and cross-border trade in agricultural products and food.

- The adverse consequences of climate change, which appears to be responsible for a greater variability of rainfall, more frequent droughts and a lowering of water tables in many tropical regions in recent years.

- Rapid population growth, which puts pressure both on the resources available in rural areas and the food supplies reaching urban areas.

- Conflicts, as experienced in the fairly recent past in three of the six countries examined as case studies. It takes a long time for society to recover from major conflicts and in some of these places they still have after-effects today.

Food security policy in the long term must ensure there is enough food available and that there is universal access to it, so as to end any need for emergency measures. These measures are only designed to meet immediate needs, not to be a semi-permanent part of any country's food supply. The need to meet people's food *preferences* must also not be overlooked, although there is a question about how far it should reasonably be taken. The main policies required for food security lie in these areas:

- agriculture;

- agricultural trade – including imports, *where* the balance of payments is strong enough to allow them;

- social protection (welfare) and distribution of income;

- the management of disasters and risks of disaster; and

- mechanisms to address both chronic and transitory food insecurity when it arises.

This paper considers mainly the first two items in the list above, since success in them is essential to ensure food security in the long term.

2. The Food Price Crisis in Commodity-Dependent LDCs

The trade in primary commodities is known to pose one of the biggest problems for development, because many underdeveloped countries have few sources of foreign exchange other than the export of either agricultural or mineral commodities. But the prices of those commodities are notoriously volatile, while selling them for export also deprives the country of their use for its own purposes, and of resources such as land from which they were produced. More recently, however, it can be said that the commodities problem has actually doubled, because most poor countries now also import a large share of their food supplies. They used not to do so. So the commodity problem now affects *both* sides of most LDCs' external trade as well as the realisation of any government's most basic task, that of ensuring its people are fed. In this situation the United Nations now designates 70 countries as Low-Income Food-Deficit Countries (LIFDCs). They include all six of the countries studied for this paper and, in total, 44 LDCs, 39 African countries and 22 Asian countries.[7]

The volatility of most commodity prices is not arbitrary but follows cycles, related to the wider business cycle and fluctuations in supply and demand for each commodity in turn. Since the middle of the last decade commodity prices have experienced their biggest cyclical upturn since the 1970s. Led initially by certain industrial and mineral commodities such as oil, iron ore and copper, in late 2007 the prices of wheat, maize and rice also started to move sharply upwards, creating a big 'spike' in their prices on world markets between about October 2007 and June 2008. The exact dates vary according to the cereal, wheat prices having reached the top of their spike in February 2008, not very long after rice prices began the sharp climb.

Much has been written and said about the reasons for these price increases, and there is no general consensus about it. However, among the suggested causes it is useful to distinguish between factors which immediately prompted the price increases, and more long-term factors which lay in the background. The most obvious among the former were short-term changes in supply and demand. Thus, the world faced a shortage of wheat supply due to harvest shortfalls caused by bad weather, in particular a severe drought in Australia, a major exporter. In some cases there were also sudden additions to demand, in particular the purchase of maize (corn) in the United States for the production of biofuels, which was receiving a new subsidy initiated by President George Bush. Immediate problems of supply and demand were, however, harder to identify on the rice market.

In the background were various long-term factors which facilitated this sudden tightening of the markets. The prices of cereals and other primary commodities had been relatively low for many years, leading to a degree of complacency among policymakers and a neglect of agriculture. This, combined with an emphasis on production for export since the era of structural adjustment, led many developing countries to rely more and more on imports of staple foods, which left them exposed when the prices of those imports suddenly went up. Low prices had also reduced the pressure for increased agricultural yields, which had stagnated since the early 1990s, contributing to a decline in world stocks on some of the cereal markets.

The background issues are not limited to global prices, supply, demand, commercial stocks and markets. This paper will argue that the crisis runs deeper than that, calling in question the whole industrial model which has dominated the world's agriculture for many years. There are two main indicators of this, the first of them relying again on a reading of movements in

[7] The countries are listed by the FAO at www.fao.org/countryprofiles/lifdc.asp?lang=en. It should be noted that Cambodia has recently been a net exporter of cereals in successive years, so it may already be inaccurate to consider it as a food-deficit country.

the prices of commodities that affect agriculture. Since 2008 many farmers have been unable to take advantage of higher prices because their major production inputs went up in price by even more. Indeed, over the whole period since the last commodity price boom in the 1970s, cereal prices actually increased less fast than those of manufactured goods – but those of the industrial inputs to agriculture increased by more than the manufactures prices. The changes in the average 'real' prices of various commodities between the three-year periods of 1978-80 and July 2005 to June 2008 are shown in Table 1. (It may be noted that the real prices of cotton and coffee, important export products for many LDCs, fell the *most* over this period, although they have been rising fast since 2010.)

Table 1 Percentage changes in real commodity prices since the late 1970s*****

Commodity	**Percentage real price change**
Crude oil	+ 59
Phosphate rock	+ 46
Wheat	- 19
Maize	- 25
Rice	- 45
Cotton	- 57
Coffee	- 63

***** Changes in average real prices between 1978-80 and July 2005 to June 2008, in per cent, deflated by the average unit values of manufactured goods. The prices are deflated between the two three-year periods by a factor of 0.5638.

Source: The author's calculations, based on data from UNCTAD, the World Bank, the IMF and International Rice Research Institute.[8]

The problem of increases in input prices appears at both the national level and that of the individual farm or smallholding. Thus, the national situation in Tanzania is reported as follows:

> 'Conforti and Sarris (2008) … trace the effects of commodity price increases through the economy and the households. They find that the commodity price changes facing a country like Tanzania can amount to a 6 percent of GDP negative shock to the economy. The reason for this is that while the agricultural price rises may imply a positive shock, the large petroleum crises imply an even larger negative price shock, as Tanzania relies very much on petroleum imports.'[9]

These changes in relative prices are surely the markets' way of pointing to a crisis in the environment, which involves agriculture as much as any other part of modern life. Crude oil and phosphates (like other mineral and chemical fertilisers) are not renewable resources, as cereals are, and it would appear that this relative scarcity has begun to be reflected in their real prices. The industrial model of agriculture, relying on single-crop fields with soil fertility and pest control provided by the use of mineral or chemical additives, is implicated in the environmental crisis in other ways too. Best known is the harm that those minerals and chemicals can do in the long run to soil quality and water availability. Less well known until recently was the relationship with climate change: both the large contribution that agriculture

[8] A more detailed table, showing the price changes of 22 commodities, may be found at www.tomlines.org.uk/CommodityPriceChanges1970sJune2008.pdf.

[9] FAO (2009), p. 41, citing P. Conforti and A. Sarris (2008), 'Policy Response to a Commodity Price Boom under Structural Constraints: The case of Tanzania', presented at an FAO meeting in Rome.

makes to greenhouse gas emissions, and in turn the impact on agriculture that is already being felt from changes in the climate, especially in tropical regions. Although meteorologists insist that no single weather event can be directly attributed to climate change, the frequent incidence of major floods in such countries as Benin, Laos and Pakistan, along with the more irregular occurrence of rains and growing frequency of droughts in the Horn of Africa and Australia, is what climate scientists have predicted for many years.

It follows that the solution to food security and the agricultural crisis lies in reducing farmers' dependence on mineral and chemical inputs, increasing the resilience of food production to changes in the climate, and, at the economic level, reducing LDCs' dependence on the global agricultural markets which have sent price shockwaves around the world. This paper will concentrate on these aspects of the question above all.

Maize, rice and wheat are not the only staple foods consumed in the countries examined in these case studies and other LDCs. In Burundi they are only the third, fourth and fifth most favoured foods. It will be important to study the position of other important foodstuffs, most of which do not enter international trade very much and are therefore protected from the sorts of price shock that affected the three main traded cereals. However, as sources of food security many of them have other weaknesses, for example lower production yields.

The extent of the influence on prices of financial investors and speculators is also disputed, but there is little doubt that in 2007-08 it was important in the wheat and maize markets, for both of which the Chicago Board of Trade's futures exchange sets reference prices for the rest of the world. This followed recent growth in the 'non-commercial' use of commodity markets, including that by financial funds which invest in commodities on the basis of price indices. In the case of rice, any such influence was more indirect and it is less widely accepted as an explanation, because the futures markets play only a minor role in the rice trade. However, a role was played by export restrictions on the rice market, especially India's near-complete ban from October 2007.

Here is a good explanation of how this worked, first in the wheat and maize markets and then in rice:

> '[T]he most volatile element behind the sudden and sharp run-up in food commodity prices was likely to have been the "hot money" in search of the next investment boom, after the crash in tech stocks and then real estate derivatives (and before the financial system itself crashed). The source of this hot money was the massive liquidity infusion provided by the US Federal Reserve System as it sought to stave off … a recession…
>
> 'Thus the real trigger for the spike in food prices in 2007 seems to have been speculative behavior on the part of large investment/ hedge funds with hundreds of billions of dollars looking for an arena with potential for asset price appreciation…
>
> 'As noted already, rice prices in world markets did not follow these early price booms in oil, wheat and corn [maize], mostly because the venues for speculation in rice price movements by "outside" investors in futures and options markets are extremely limited…
>
> Still, formation of rice prices can be significantly influenced, especially in the short run, by price behavior in other related commodity markets because prices in these other markets influence how the millions of small-scale participants in the rice system form their own expectations about rice prices. As was seen in late 2007 and early 2008, these expectations can be self-fulfilling.'[10]

So the 2008 crisis arrived in developing countries from *global markets*; indeed, economists refer to it as an 'external shock'. An example of how it affected a fairly stable domestic

[10] Timmer (2010), pp. 44-45.

market is found in this account from Zambia, where maize is the main staple food: '[The] May 2008 food balance sheet showed a small surplus over national consumption requirements… Because of nervousness in the markets related to high world food prices, private millers and traders [later] started the 2008 season by aggressively buying maize at prices higher than the [Food Reserve Agency] floor price.'[11]

Rice prices were much less affected than wheat and maize by the renewed price surge that started in mid-2010, which was again amplified by the futures trade. The FAO reported in September 2010 that the main factors behind the renewed escalation of world prices, and the price volatility, included 'unexpected crop failures in some major exporting countries followed by national responses and speculative behaviour', as distinct from the 'fundamentals' of supply and demand on global markets.[12] Global reserves in general had recovered amply since 2008, the 2007 drought which hit Australian wheat production in 2007 was long past, and the increase in U.S. production, stimulated by higher prices since 2007, was expected to be quite enough to ensure that there would be no global shortage in 2010 or 2011.

These markets are now dominated by big investment banks as well as speculative hedge funds, not by those who trade in actual physical commodities. The extent of their penetration can be seen in this news report from October 2010 – strangely worded though Barclays Capital's explanation is:

> 'Hedge funds [now] dominate 24% of the maize [corn] market, enjoying the commodity's 34% price rally so far this year. The price increase, however, is not only due to financial investors' appetite but also linked to market fundamentals, [Barclays Capital] says. "Hedge funds entered the corn market after the US department of agriculture reduced the [forecasts of] yields … cutting total supply," [Amrita] Sen [of Barclays Capital] said.'[13]

The hedge funds' entry into the market was emphatically *not* a matter of 'market fundamentals' but of financial intrusion – even if it was news of 'fundamentals' that attracted them in. Their activity is speculative, not 'fundamental', due to the very nature of hedge funds.

An important factor behind the price surge in the second half of 2010 was the U.S. Federal Reserve's new round of monetary expansion in its 'quantitative easing' programme. As was predicted before that round started, 'The current financial crisis does not bode well for monetary stability, especially given the significant monetary expansion that is likely to follow the fiscal stimulus packages now envisioned in most large economies. Hence it is likely that macroeconomic factors will continue adding instability to world commodity markets.'[14] And so it has been in the months since those words were written.

In early August an official of the Dutch agricultural bank, Rabobank, was reported as saying that, 'Domestic and foreign companies in the Russian grain market have been caught out and left exposed… Glencore, the world's top commodity trader, raised eyebrows by calling for Russia to impose export curbs. This would let suppliers declare "force majeure", allowing breach of contract.'[15] So it was that Russia's wheat export ban, prompted by a commodity

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[11] Tembo *et al* (2009), Table A1, p. 29.
[12] FAO (2010A), p. 1.
[13] Moya (2010).
[14] Sarris (2010), p. 71.
[15] Evans-Pritchard, A. (2010), 'Wheat Storm will soon Blow itself out', in *Daily Telegraph*, London, August 4th, www.telegraph.co.uk/finance/comment/ambroseevans_pritchard/7927138/Wheat-storm-will-soon-blow-itself-out.html (March 2011).

trader's own commercial interests, triggered the renewed purchases of grain futures by hedge funds and other financial agents.

3. The Case Studies

Four features distinguish the countries that have fallen behind the rest of the world during the era of globalisation. They are: small populations; remoteness from world markets (often because they are landlocked); dependence on commodity exports; and a combination of rural poverty with substantial imports of food.[16] A large share of agriculture in national income and employment could also be added. The six countries under review share most of these characteristics, although due to their situation in South-east Asia, Cambodia and Laos are less remote economically than the African countries. However, it should be noted that unlike other LDCs, in 2008 none of them except Benin was seriously dependent on food imports, and yet they were all affected to a greater of lesser extent by the global price crisis.

Table 2 Basic data of the case study countries, with comparisons
(All the figures are for 2010 unless stated)

	Benin	**Bur-undi**	**Tan-zania**	**Zam-bia**	**Cam-bodia**	**Laos**	**LDCs**	**World**
Area (thousands of km^2)	113	28	945	753	181	237	---	---
Landlocked	No	Yes	No	Yes	No	Yes	---	---
Population (millions)	9.2	8.5	45.0	13.3	15.1	6.4	17.1*****	6,909
Urban population (%)	42.0	11.0	26.4	35.7	20.1	33.2	29.1	50.5
Gross domestic product (GDP) *per capita* (US$), 2008	771	144	496	1,134	711	893	664	9,120
Gross national income *per capita* at purchasing power parity (US$)	1,499	402	1,344	1,359	1,868	2,321	1,393	10,631
Structure of GDP (%, 2008)								
Agriculture	35	35	45	21	32	34	27	4
Industry	14	20	18	46	-	27	31	30
Services	51	45	37	33	-	39	42	66
Life expectancy at birth	62.3	51.4	56.9	47.3	62.2	65.9	57.7	69.3

***** Average per country

Sources: UNDP, *Human Development Report 2010*; UNCTAD, *Handbook of Statistics 2010*; and others.

Table 2 shows basic data for the six countries. In most of the categories, they are broadly representative of LDCs. However, all except Tanzania have smaller populations than the average for LDCs, which in turn is roughly half the average for all countries in the world. It also stands out that Burundi is much the poorest of the six while its urban population is exceptionally small at only 11 per cent of the total (even though its density of population is very high). In Benin, on the other hand, the urban share of population is closer to the world average than the average for LDCs. And as Table 3 shows, Benin has the best score on the Global Hunger Index, and Burundi the worst.

The six countries are assessed in the annual *Global Hunger Index* as having food security statuses that vary between 'serious' and 'extremely alarming'. As seen in Table 3, these

[16] Lines (2008), pp. 16-23.

assessments have diverged over the last 20 years: while in 1990 they were within 10 points of each other (from Tanzania on a score of 22.9 to Burundi on 31.8), by 2010 the difference between the best and the worst was over 20 points (from Benin on 17.1 to Burundi on 38.3). Three countries (Benin, Laos and Cambodia) markedly improved their scores over those 20 years, two (Tanzania and Zambia) improved a little, but Burundi's score seriously deteriorated.

Table 3 Countries' status on Global Hunger Index in 2010 and 1990

GHI status, 2010	Country	GHI score, 2010	GHI score, 1990	Comparison
'Serious'	Benin	17.1	24.0	Better
	Laos	18.9	29.0	Better
'Alarming'	Tanzania	20.7	22.9	Similar
	Cambodia	20.9	31.5	Better
	Zambia	24.9	25.6	Similar
'Extremely alarming'	Burundi	38.3	31.8	Worse

Source: IFPRI, *2010 Global Hunger Index.*

In general, Table 4 suggests a relationship between food security performance and general economic performance, as measured by the growth (or decline) in gross domestic product (GDP) per person over almost the same period of years. But there is an exception in the case of Benin, where the improvement in the Hunger Index appears somewhat greater in relation to economic growth than in the other countries.

Table 4 Growth (or decline) in GDP per person, 1992-2009

Country	Growth rate in GDP per *capita*, 1992-2009*
Cambodia	5.9
Laos	4.4
Tanzania	2.9
Benin	1.2
Zambia	0.8
Burundi	- 1.4

***** The data used for 2009 are estimates.

Source: UNCTAD, *Handbook of Statistics 2010*.

On the other hand, in this very small sample of countries there is no apparent relationship between trends in food security, as measured by the GHI, and in trade performance, as seen in Tables 5 and 6. On those measures, Laos again performed well and Burundi poorly. However, Benin's trade performance also deteriorated seriously but Zambia's improved (due

to prices for copper, its main export). Cambodia's performance was much worse in foreign trade than in food security and economic growth.

Table 5 Performance of national trade balances in 1990 and 2008

Performance	Country	1990		2008	
		In U.S. dollars	% of GDP	In U.S. dollars	% of GDP
Better	Laos	- 110	- 12.7	+ 60 (2007)	+ 1.5
	Zambia	- 537	- 14.4	- 212	- 1.5
	Tanzania	- 936	- 17.1	- 2,832	- 13.3
Similar	Cambodia	- 438 (2000)	- 11.9	- 1,191	- 10.6
Worse	Benin	- 90	- 4.9	- 754 (2007)	- 13.7
	Burundi	- 229	- 20.0	- 393	- 35.4

Source: UNCTAD, *Handbook of Statistics 2010*.

Table 6 Performance of national current accounts in 1990 and 2008

Performance	Country	1990		2008	
		In U.S. dollars	% of GDP	In U.S. dollars	% of GDP
Better	Laos	- 55	- 6.4	+ 62 (est.)	+ 1.2 (est.)
	Zambia	- 594	- 15.9	- 1,046	- 7.2
Similar	Tanzania	- 559	- 10.2	- 2,307	- 10.8
	Cambodia	- 35	- 2.5	- 1,051	- 9.4
Worse	Benin	- 18	- 1.0	- 734 (est.)	- 11.1
	Burundi	- 69	- 6.0	- 212	- 19.1

Source: UNCTAD, *Handbook of Statistics 2010*.

The data in Table 7 suggest that Cambodia and Tanzania should be in the best position to weather the shock of increased staple food prices, and Zambia and Burundi in the worst position.

Table 7 Exposure to harm from external shocks in the case study countries

		Macro-economic vulnerability	
		Medium	**High**
Human development status	**Medium**	Cambodia Tanzania	Laos
	Low	Benin	Zambia Burundi

Source: Marone *et al* (2009), p. 4, Fig. 1, based on U.N. and IMF data

Finally, Table 8 shows how varied the diets are in the six countries, according to the FAO's data. Thus, the people of Cambodia and Laos rely heavily on rice for their dietary energy supplies (DES), and Zambians on maize. The situation in the other African countries is mixed. Tanzanians predominantly favour maize, but no staple food dominates in Benin or Burundi. Burundians prefer other foods to the main internationally traded cereals, but no crop is dominant there – as befits the geographical variety of the country in general and the

sourcing of its food supplies in particular. In all the African countries except Tanzania, cassava is an important back-up crop but better-off city dwellers often prefer rice or wheat.

Table 8 Main staple foods in the case study countries

	Crop	Percentage of dietary energy supply (DES)	Comments
Benin	Maize	21	
	Cassava	16	
	Rice	11	Mostly imported, for urban consumption
	Sorghum	6	
Burundi	Beans	16	
	Cassava	16	
	Maize	13	
	Rice	3	90 per cent self-sufficient
	Wheat	2	Urban consumption
Tanzania	Maize	34	
	Rice	9	Mostly imported
	Beans	3	
Zambia	Maize	52	
	Cassava	13	
	Wheat	7	Mainly urban consumption, 74 per cent self-sufficient
	Rice	1	
Cambodia	Rice	66	A net exporter of rice and maize in recent years
Laos	Rice	64	

Source: FAO GIEWS, www.fao.org/giews/pricetool

4. Case Study 1: Benin

Benin has pursued successful food security policies over many years despite a weak export base and limited progress in economic development as conventionally understood. The impact of the 2008 crisis on Benin's people was also more limited than in many countries. According to IFAD, the country still has a high level of hunger but it made rapid progress in improving it between the decades of the 1990s and 2000s (see Table 2 above).[17] The WFP's most recent Vulnerability Assessment, conducted in November-December 2008, concluded that 972,000 people, or 12 per cent of households, were experiencing food insecurity, while a further 1.05 million (13 per cent of households) faced a risk of food insecurity.[18] By economic category, poverty and food insecurity were most prevalent among subsistence farming households, with 322,000 people or 17 per cent of them food-insecure. They also formed the largest group, amounting to 23.4 per cent of Benin's population. Among them, 38 per cent were counted among the poorest 20 per cent of the total population.[19]

After the 2008 crisis retail prices for maize, the country's leading staple food, fell back from their mid-2008 highs but they remained substantially above previous levels until the middle of 2009, when in some parts of the country they fell right back to the levels of 2006 and early

[17] IFAD (2010), Table 1, p. 51.
[18] WFP (2009), p. 115.
[19] *Ibid.*, p. 117.

2007. However, they remained higher in Cotonou, the largest city.[20] Among the other main food crops, prices of cassava increased sharply in most places in late 2008, but no higher than during a previous cassava price surge in 2005.[21] But the value of food imports increased to FCFA 271 billion in 2008, three times their level in 2000.[22]

According to Soulé and Yérima's case study for UNCTAD, several factors contributed to the relatively benign impact of the crisis in Benin. Chief among these is the limited market penetration of agriculture, which is dominated by family smallholdings that use mixed farming systems and extensive herding of small livestock. These practices reduce risks, whether those arising from climate shocks or malfunctioning global markets, and in particular they minimise the effects of a crisis linked to international price volatility. Soulé and Yérima describe the informal sector as the 'motor' of Benin's economy. A simulation conducted by the Benin government indicated that during the crisis poverty was aggravated more in urban than rural areas. This was because agricultural activity was less affected by the crisis, partly because of measures that the government adopted, while urban households that depended on manufacturing, trade and other services were the biggest victims of price increases. Most agricultural producers could rely on subsistence production and in many cases increased their incomes by quickly raising production to take advantage of the higher prices.[23]

At the time of the price crisis in 2007-08 the government introduced a number of immediate measures. It sold US$83 million worth of cereal reserves but purchased over 20,000 tons of grain from farmers, half of which was bought by ONASA, the National Food Security Support Office, as buffer stocks to stabilise domestic prices, and half by the National Agricultural Promotion Company (SONAPRA) under contract with the WFP, to be exported to Niger. The government reduced import duties on rice, sugar and milk, and imposed an unofficial export ban on cereals. Fertiliser subsidies, previously reserved for cotton farmers, were extended to food producers. The government also approved FCFA 8.2 billion worth of food subsidies, while food and non-food vouchers for targeted beneficiaries were planned with WFP and French aid. However, prices were then liberalised on most subsidised products from July 2008. These measures aimed at increasing the productivity and competitiveness of certain food commodities, and rice and maize in particular. By 2010 the incidence of poverty had reduced by 2.1 per cent. A large part of this was due to the sharp increase in food production as rural people profited from the large purchases by ONASA and SONAPRA at the higher prices.[24]

WFP's Vulnerability Assessment found that in urban areas 90 per cent of food consumed was acquired on the market, and 73 per cent of it in rural areas. Farmers and pastoralists produced a little over one-third of the food they consumed, compared with 16 per cent in the population overall.[25] According to the WFP, Benin's maize markets are well integrated with each other.[26] However, maize was singled out as the food product with the most unstable prices in the country over the period 1990-2008.[27]

In June 2008 the government adopted an ambitious Strategic Plan for Agricultural Sector Revival (PSRSA), which proposes conventional industrialised agriculture for a rapid increase in crop output, with diversification based on four main food security crops: maize, rice, cassava and yams. Of these, the 'non-traded' crops – cassava and yams – are of particular

[20] FAO/GIEWS National Basic Food Prices Tool, www.fao.org/giews/pricetool/ (March 2011).
[21] *Ibid.*
[22] Soulé and Yérima (2011), p. 38.
[23] *Ibid.*, pp. 17, 39, 40 and 44.
[24] Inter-agency Assessment Mission (2008); HLTF (2009C), 'Country Fiche: Benin', pp. 56-59; Soulé and Yérima (2011), pp. 40, 41 and 45.
[25] WFP (2009), p. 118.
[26] *Ibid.*, p. 23.
[27] In French, 'la denrée la plus instable'. WFP (2009), p. 24, citing a nationwide study of market prices between 1990 and 2008, carried out by ONASA.

interest. The cassava value chain has a strong potential as an economic multiplier since its production, processing and retailing create the greatest number of jobs. The yam meanwhile was previously considered a luxury but has become a widespread foodstuff, especially in urban areas, over the last 15 years. It is considered the leading crop for food security and agricultural incomes, generating FCFA 184 billion in agricultural incomes plus value added in processing. It has become the largest contributor to the farm economy, providing 21 per cent of agricultural GDP.[28]

Benin has also seen a rapid growth of rice imports, serving urban tastes. Between 2001 and 2005 they amounted annually to 383,000 tons worth US$112 million, or 12.8 per cent of the country's imports, up from just 1.1 per cent of imports in 1971-80. This is very high for a country with such a narrow export base even if world prices for cotton, its leading export, did recently reach record highs. By 2006 rice was reported to provide 17 per cent of Benin's caloric intake, up from 11 per cent in 2001-05 and just 1.2 per cent in the 1960s.[29] Domestic rice production has also grown fast, at an annual rate of 13.8 per cent since 1962, to reach 78,800 tons in 2007 and 150,000 tons in 2011. Soulé and Yérima consider that the rice sector had been underexploited due to the absence of any promotion policy for it until 2008.[30]

However, the distributive impact of these measures among Benin's farmers has been called into question. According to one recent report, 'In Benin, in order "to ensure production," the majority of beneficiary farmers were big producers who grow more than two hectares (60 percent).' This was said to be an example of a wider situation where, 'Despite international commitments in favour of small farmers, many reports indicate that programmes supporting food production have generally targeted farmers seen as better off and more productive.'[31]

According to a sympathetic study from China, the PSRSA 'foresees changes in the cropping system … such as widespread use of machines and fertilizers, large-scale exploitation of farmland and so forth.' The authors - from the China University of Geosciences in Wuhan - recommended Benin instead 'to adopt the circular agriculture currently in practice in China' in order to reduce environmental risks. This system is described as 'a closed-loop eco-economic network' and among the examples they give is this:

> 'The implementation of circular agriculture in Linquan, County of Anhui Province … features linkage of forest products, grasses, livestock, fungi, biogas and fertilizers… It has proven particularly valuable in the handling of cattle manure, for which three downstream channels have been found, in the production of mushrooms, methane and foodstuffs respectively.'[32]

Benin's international trade position is weak as the deficits on both the trade and current accounts have sharply deteriorated since 1990. This is attributed to insufficient diversification of exports away from cotton, while imports of consumer goods have grown rapidly over the last ten years. Cotton accounts for over 80 per cent of Benin's commodity exports and 34 per cent of its total merchandise exports. As a member of the CFA franc zone, it might be expected that Benin would be commercially well integrated with its Francophone neighbours, but this is not the case. In spite of long frontiers with Burkina Faso, Niger and especially Togo, Benin's expanding regional trade is with its more populous eastern neighbour, Nigeria. Perhaps this is not surprising in view of the size of Nigeria's economy. However, Soulé and Yérima are critical of the 'very speculative' nature of the thriving informal re-export trade with Nigeria, which exploits the *arbitrage*, or differences, between Nigerian and Béninois

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[28] Soulé and Yérima (2011), pp. 26 and 28-29.
[29] Aker *et al* (2010), Tables 8.2 and 8.3, pp. 148-49.
[30] Gajigo and Denning (2010), Table 9.1, p. 166; Soulé and Yérima (2011), p. 27.
[31] Mousseau (2010), p. 25 and pp. 24-25 respectively, citing World Bank project proposals of October and November 2008.
[32] Gangnibo *et al* (2008), pp. 72-75.

prices; however, it does provide 43 per cent of Benin's exports, compared with 34 per cent from cotton, and increases import cover from a dismally low 25 per cent to 65 per cent or more.[33] On the other hand, after the 2008 crisis it had a depressive effect on Benin's wider economy since it transmitted Nigeria's more severe crisis across the border.

Benin's cotton farmers are mainly in the North, which faces the worst problem of malnutrition, and they did not prosper for many years due to low prices until the most recent stage of the current commodities boom. The record world prices for cotton in early 2011 should give them – and the balance of payments - some breathing space, especially as there is less pressure from input prices than in 2008, with the world's oil and, especially, fertiliser prices still below their peaks of that year.

However, Benin faced a major crisis of its own between July and November 2010, when serious floods destroyed over 68,000 HA of crop land for maize, sorghum, cassava, millet and yams, and killed 141,000 animals. They affected an estimated 680,000 people, many of them in the poorest departments, such as Alibori, Borgou, Ouémé and Zou. Food security is weakest in the Atacora region in the North-west, next to the frontiers with Burkino Faso and Togo. But besides Atacora, the poorest people are concentrated in the other Northern departments (Alibori, Borgou and Ouémé) and in Zou in the Centre-south.[34] The FAO's Global Information and Early Warning System (GIEWS) pointed out that the '[m]aize price in October 2010 in Cotonou … was 44 percent higher than in October 2009 and 77 percent higher than the pre food prices crisis level of three years ago. This has led to a serious deterioration of the food situation in parts of the country.'[35]

5. **Case Study 2: Burundi**

Burundi has the misfortune to display nearly all the features that were identified as lying behind economic weakness, and especially rural poverty, in LDCs: the country is small, it occupies a remote, landlocked position, depends on commodity exports and suffers from severe rural poverty. Burundi is more densely populated than most of Africa and 90 per cent of the population depends on subsistence agriculture.[36] In an agrarian country with a mainly rural population, that indicates that the land is productive, allowing two crops per year in much of the country. But it also means that food supplies have to be larger to meet the needs, which they have failed to do in recent times. The country is reported to be between 300,000 and 400,000 tons short in food each year.[37] The UNDP has described Burundi's human development as 'dire'. In particular, the malnutrition rate increased from 48 per cent of the population in 1990-92 to 66 per cent in 2002-04.[38]

GDP *per capita* is reported to be the lowest in the world at US$90-100.[39] It fell disastrously over a long period, at an annual rate of -1 per cent between 1975 and 2005, accelerating to -2.8 per cent from 1990 to 2005.[40] Economic decline in the 1990s was associated with serious domestic conflict. In the agricultural sector, value added *per capita* fell from US$118.15 in 1980 to US$70.44 in 2005.[41] The trade balance also deteriorated as volumes of its major export, coffee, steadily declined from a peak of 41,300 tons exported in 1991 to 15,000 tons

[33] Soulé and Yérima (2011), pp. 11-12, 14, 19 and 20.
[34] WFP (2009), p. 115.
[35] GIEWS (2011A).
[36] HLTF (2009C), p. 64.
[37] Marone, Thelen and Gulasan (2009), p. 12, citing the WFP.
[38] *Ibid.*
[39] Burundi case study (2011), p. 20.
[40] UNDP (2007), Table 14, p. 280.
[41] Burundi case study (2011), p. 19.

in 2008.[42] However, it is reported that, 'Coffee production for 2010 increased significantly, estimated at 30 000 tonnes, compared to the 6 500 tonnes produced in the previous year.'[43]

Although quite small, Burundi is geographically varied, which affects food production and consumption. There is a broad range of staple foods, none of them accounting for more than 16 per cent of DES – the case of both beans and cassava, the leading staples. Maize is the most widely grown cereal with an average crop of 120,000 tons in 2005-09.[44] Imports of food are less than in many countries, but the leading formal food import is maize. Cassava and beans are also imported, mostly informally, from neighbouring countries - mainly Tanzania and the Democratic Republic of the Congo, but also Rwanda or from Uganda via Rwanda. Bujumbura, the capital, and the rest of North-western Burundi are less integrated than other regions in domestic food markets and they depend on imports from DR Congo.

According to WFP, Kirundo Province in the North-east, next to the Rwandan border, is the poorest with 82 per cent of the population living on less than US$1 per day.[45] There was recently a wave of emigration from there to Rwanda arising from food shortages. The early 2011 bean crop was reduced because of poor rains in late 2010, which led to reduced sowings and affected food security. The main beans crop, which is harvested in December-January, fell by half in Kirundo province, which experienced the worst shortage of rain. In December 2010 bean prices there were 38 per cent higher than a year before.[46]

Burundi's food crisis is a chronic problem, which - at least in price terms - was actually rather less severe in 2008 than it was just before and just after that. In line with the cropping seasons, food prices are generally highest at the turn of the year, and so it proved even in 2008. However, several crop prices had already increased sharply in 2006-07, and among the five crops monitored by GIEWS in Bujumbura, only wheat prices rose at a faster rate during 2008, more than doubling from 350 Burundi francs per kg in late 2007 to a peak of 750 francs in October-November 2008. On the other hand, prices increased again in 2009, and in late 2010 those for the most important staple foods were all higher than they had been at their 2008 peaks: by 16 per cent in the case of beans, 23 per cent for cassava flour and 10 per cent for maize.[47]

Nevertheless, special attention was focused on the adequacy of food supplies in 2008 and 2009 in Burundi, as it was elsewhere. The government responded by suspending import duties on certain food and oil products and reducing sales taxes on 13 basic foods, with the aid of a US$10 million grant from a World Bank trust fund. Also with the help of donors, it spent the equivalent of an extra 3 per cent of GDP on assisting the most vulnerable social groups with programmes such as school feeding.

In July 2008 the government adopted a new National Agricultural Strategy, aiming to triple the budget for agriculture in the spirit of the African Union's Maputo Declaration. At present agriculture receives barely 3 per cent of the budget although it accounts for 35 per cent of GDP.[48] The main aim is to rehabilitate and modernise the sector in order to eventually transform agriculture from subsistence to a market basis.[49] Market mechanisms barely exist

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[42] ICO data, http://dev.ico.org/historical/1990-99/PDF/exportscalyear.pdf and http://www.ico.org/historical/2000+/PDF/EXPORTSCALYR.pdf.
[43] GIEWS (2011B).
[44] *Ibid.*
[45] WFP (2010), p. 3. Until the middle of the 1970s, Kirundo was the richest province in Burundi and a major producer of beans and sorghum. However, over the last 35 years or so, droughts have progressively made Kirundo and its vicinity the poorest areas of Burundi and Southern Rwanda.

[46] FEWS NET (2011).
[47] FAO/GIEWS National Basic Food Prices Tool, www.fao.org/giews/pricetool/ (March 2011).
[48] Burundi case study (2011), pp. 39-40.

[49] *Ibid.*, p. 8.

in rural Burundi at present. The actions under it include the opening of seed centres in 15 provinces and assistance to irrigation, especially in the rice-growing area of Imbo province, north of Bujumbura. Rehabilitation of the tea and coffee export sectors is another priority.

In February 2009 a National Food Security Programme was also approved.[50]

In March 2010 a strategy document for the livestock sector was approved at a national workshop. Burundi's agro-climatic conditions are suitable for extensive pasturing but this has reached its limit due to the narrow parcelling up of land and the competition between agriculture and pastoralism that arose from it. The space remaining for pasture is less and less adequate and agriculture no longer produces a sufficient surplus to provide the initial livestock, as in the past.[51]

The UNCTAD case study recommends the government to set up food reserves or emergency food banks for the benefit of the most deprived parts of the population. However, it recognises that this alone will be insufficient without a good understanding of how to manage the stocks and the distribution of food parcels. A further recommendation is for regional organisations of which Burundi is a member, such as COMESA and the East African Community, to finance a fund to reduce food price fluctuations in strategic products.[52]

In accordance with the depth of the problems that Burundi faces, it has received considerable attention from aid donors since 2008. The biggest single programme is worth US$50 million from the World Bank, for the restoration of agricultural productive capacity and sustainable management of land resources. IFAD meanwhile has committed US$122 million, including co-financings, to a series of projects to assist smallholder food production and value chains.

6. Case Study 3: United Republic of Tanzania

Tanzania has a large and diverse land area, much of it fertile. Alongside Zambia, it has enjoyed the greatest political stability among the six case study countries since Tanganyika and Zanzibar combined to form the United Republic in 1964. Although not uniformly successful, the policies pursued under President Julius Nyerere in the early years were aimed largely at meeting the needs of the rural majority. All of this should provide a promising basis for food security in the future. However, Tanzania's approach to food security appears somewhat contradictory and it is hard to define precisely.

According to GIEWS' data, the prices of maize, beans and rice in Dar-es-Salaam reached their peaks in early 2010, but then fell away sharply with the bumper main-rains harvests achieved in that year. The highest maize price, equivalent to US$415 per ton, was in January 2010. This was 24 per cent above the previous peak of US$335 per ton in February 2008, which was itself 122 per cent above the price one year earlier. This was even though Tanzania, like Zambia, did not have to import food during the global financial crisis.[53] However, by August 2010 the maize price subsided to US$195 per ton, its lowest for nearly three years. Similar patterns were seen on the markets for beans and rice in Dar.[54]

By early 2011 the situation had changed and FEWS NET reported that, '[A]bout 1.25 million people are considered to be food insecure until March 2011, with about one third categorised as highly food insecure.' They were mostly in the Dodoma, Arusha, Kilimanjaro, Shinyanga

[50] *Ibid.*
[51] *Ibid.*, pp. 9 and 21.
[52] Burundi case study (2011), pp. 38 and 40.
[53] Ndlovu (2011), p. 41.
[54] FAO/GIEWS National Basic Food Prices Tool, www.fao.org/giews/pricetool/ (March 2011).

and Tanga regions in the Centre and North-east of the country.[55] This was due to the late appearance of the late-2010 short rains, which also led to serious food problems in bordering regions of Burundi, as we have seen.

The government's main measures to deal with the 2008 crisis were to ban maize exports, remove the duty on cereal imports and introduce fertiliser vouchers for farmers. The main element of social protection was to release stocks from the National Food Grain Reserve.

The guiding policy document at the time was the Agricultural Sector Development Strategy (ASDS), which was approved in 2001 and spelt out later in the Agricultural Sector Development Programme (ASDP) of 2006. Its goals were summed up by the HLTF as 'to increase private sector investment and to give farmers better access to and use of agricultural knowledge, technologies, marketing systems and infrastructure'.[56] It aimed to move from subsistence to commercial agriculture, and to decentralise responsibility to local government authorities.

The ASDP's financing document in 2006 pointed out that the government had already 'elaborated on interventions to improve the relevance and effectiveness of agricultural research and extension services through shifting control over resource allocation to farmers… to improve the capacity of farmers to articulate demand for agricultural services … and improve the capacity of both public and private providers to respond to demand.'[57] However, there is some ambiguity here. The important questions concern who will run the services; who will pay for the advice; and what range of knowledge the advisors will offer if the farmers themselves are not able to articulate their best needs, or the technical tools required to achieve those needs are not made available under the financial terms.

Tanzania has become one of the leading centres of work on alternative crops and farming methods, including agroforestry. It hosts the Africa Regional Centre of the World Vegetable Centre, in Arusha. Part of the WVC's approach is to learn from farmers, in the search to develop indigenous sources of micronutrients.

The World Agroforestry Centre (WAFC) has commented that in modern times agroforestry research and development work has been going on in the country for more than 30 years.[58] It explained:

> 'Tanzania is home to several traditional agroforestry systems that have been in practice for hundreds of years. Some have been documented such as the Chagga home-gardens, the related Mara region home-gardens known as Obohochere and the traditional Wasukuma silvopastoral system called Ngitili. One outstanding aspect of these traditional methods is the use of multi-layered systems with a mixture of annual and perennial plants, which imitate natural ecosystems.'[59]

And older traditions of farming are still remembered in Tanzania. Here is a description referring to the Usambara Mountains in the North-East:

> 'Elders of Longoi still remember the traditional agriculture systems. Site-oriented agroforestry, partly under irrigation, has been practiced over hundreds of years, using surrounding forests as buffers for the water balance and food resource in times of famine… Even nowadays knowledge of trees and their integration into agriculture, green manuring and fallow plants as well as ways of intercropping has not been lost. Some

[55] GIEWS (2011D).
[56] HLTF (2009C), p. 164.
[57] United Republic of Tanzania (2006), p. 5.
[58] WAFC (2009), p. 2.
[59] WAFC (2009), p. 2.

farmers still continue to cultivate their fields in a modified traditional way, including now cash crops such as coffee. But they are few.'

However, the concentration on producing maize and beans for subsistence has led to a situation where, 'The natural potential of Usambara and the knowledge of the people about their environment are decreasing at an alarming rate, the former being due to soil erosion and inappropriate land-use practices.'[60] The IAASTD Global Report advocated the same, with a reference to Tanzania:

'Agroforestry practices can … improve soil fertility in the future, which is crucial for achieving food security, human welfare and preserving the environment for smallholder farms… An integrated soil fertility management approach that combines agroforestry technologies – especially improved fallows of leguminous species and biomass transfer – with locally available and reactive phosphate rock (e.g., Minjingu [mine] of northern Tanzania) can increase crop yields severalfold.'[61]

Tanzanian government policy has pursued and encouraged many of these leads, for example with the approval of a National Agroforestry Strategy in 2004. In January 2010 Vice-President Ali Mohamed Shein visited the WAFC's headquarters in Nairobi.

Since 2009 the government has pursued a new general programme called *Kilimo Kwanza* ('Agriculture First'). The first paragraph of the *Kilimo Kwanza* Resolution calls it 'Tanzania's Green Revolution to transform its agriculture into a modern and commercial sector'.[62] Under the fourth of ten 'actionable pillars', its Implementation Framework provides a list of 'strategic food commodities' to be promoted 'for the country's self-sufficiency'.[63] The programme emphasises food reserves and a price stabilisation mechanism. Pillar no. 7, with the title 'Industrialization for agricultural transformation', calls for the increased production of fertilisers and agrochemicals.[64] On the other hand, the Framework says nothing about green manures or other aspects of agroecology.

In Annex 2.2 of the ASDP, agroforestry is also specified as requiring 'basic and strategic research in those fields considered of key national interest';[65] however, it makes no reference to agroforestry practice or to any specific goals in this field. As such, it does not seem to be an integral part of this national policy, although Tanzania is one of the countries with greatest experience of agroforestry.

However, following up on *Kilimo Kwanza*'s aim of creating a 'modern and commercial' agricultural sector, an announcement was made at the 2011 Davos Conference of a 20-year, US$3.4 billion 'Southern Corridor' programme, to work closely in alliance in that region of Tanzania with Syngenta and 16 other major corporations. It will be started with US$2 million of project finance from USAID. The idea is to develop a 'hub and outgrower' system, the hubs being large commercial farms along the Corridor and the outgrowers being smallholder farmers.

Tanzania also has an active policy to promote foreign investment in rural land:

'[T]he Tanzania Investment Centre … is mandated, among other things, with identifying

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[60] Mersman and Taube, p. 1.
[61] IAASTD (2008), p. 396.
[62] United Republic of Tanzania (2009B).
[63] United Republic of Tanzania (2009A), para 4.1. The commodities are: maize, cassava, rice, legumes, fish, meat and dairy products, wheat, bananas, potatoes, sorghum and millet.
[64] Tanzania National Business Council (2009). It is curious that, despite the great importance of agriculture to Tanzania, this meeting, chaired by President Kikwete 'to discuss the policies and strategies for the transformation of Tanzania's agriculture', was held under the auspices of the National Business Council rather than an equivalent body for agriculture.
[65] ASDP, p. 62.

available land and providing it to investors, as well as with helping investors obtain all necessary permits… The TIC has set up a "land bank"— it has identified some 2.5 million hectares of land as suitable for investment projects. Land is vested with the TIC and then allocated to the investor on the basis of a derivative title. After the end of the investment project, the land reverts back to the TIC.'[66]

These are worrying signs of a disconnect between national statements of principle and actual policy actions. The government would do well to encourage and assist all of the more people-based and ecologically sound approaches to agriculture.

Meanwhile, Tanzania's programmes are heavily dependent on donor funding, including US$676 million of loans for agriculture and social protection. Even if most of this is on concessional terms, and most of the work is successful, it may fairly be asked how a country of Tanzania's economic status will manage to repay such a large sum.

7. Case Study 4: Zambia

Zambia is interesting as much for the consequences of certain policies that were undertaken before 2008 as for anything since then. In a period of great economic hardship for the country, and after a radical reform of agricultural policies, rural poverty in Zambia actually fell in the 1990s. Since 2008 there has also been a rapid increase in food production, but this came after some of the policies abandoned earlier had been restored. It will be interesting to compare the two sets of results.

Among the six case studies, Zambia is the only country which was not chosen for intensive assistance from the HLTF's Comprehensive Framework for Action of July 2008.

Maize has long been Zambia's main staple food, recently accounting for 52 per cent of DES, and its cultivation has frequently been encouraged by governments for that reason. However, as we saw above, in May 2008 Zambia's food balance sheet showed a small surplus over national consumption requirements, which might have led one to expect stable or even falling prices.[67] But the global maize price increases of the time disrupted Zambia's market and ended up forcing its domestic prices up, when they would probably have remained much more stable had it not been for events on the global market. The consequences were severe. In a comparative study with four other countries in 2009, it was reported that 'rural Zambian women explained that inadequate food meant they were not strong enough for fieldwork.'[68]

As a national average, maize prices reached their peaks between March and May 2008, depending on the type of maize. This was before the spike in world prices ended. Cassava, wheat and local rice prices rose to new peaks in 2010 but maize did not, and all prices fell away towards the end of that year in the wake of a record maize crop. They remained between 12 per cent higher (for white maize) and 83 per cent higher (for rice) than they had been at the beginning of 2008. Agriculture is more productive in the wetter cassava belt of the North; even maize yields are higher there than in the South, which specialises in maize. Cassava is consumed more by the poor, and wheat by better-off city dwellers.

A detailed study of Zambian households, conducted between 2006 and 2009, revealed some complexity in the impact of the food price changes. The conclusions were not far from what common sense might predict, but they argue against any simple view of the impact on hunger

[66] The TIC operates under a leasing law which was drafted by the World Bank's more commercial arm, the IFC (Daniel and Mittal [2010], pp. 19 and 45).
[67] Tembo *et al* (2009), Table A1, p. 29.
[68] Institute of Development Studies (2009), p. 50. The other countries were Bangladesh, Indonesia, Jamaica and Kenya.

and poverty. On the other hand, the researchers themselves argued, 'Given the wide range of shocks experienced by Zambia from December 2006 until the end of 2009, our conclusions are surprisingly clear cut.' They went on:

> 'The rapid increase in food and non-food prices, particularly during 2008, had a major negative welfare impact on urban households. This was because most urban households in Zambia are significant net consumers of food… This is particularly true for the poorest urban households, whose share of wages in income is much lower than that of better off urban households.'

The situation in rural areas was more complicated, but also not at all surprising:

> 'Although they were also negatively affected by increases in non-food prices, particularly in 2009, the overall effect for rural households was positive, particularly for medium and large scale farming households. However, non-agricultural households in rural areas lost, as their losses from higher consumption costs were not compensated by higher agricultural income.'[69]

During a severe economic crisis after a sharp real decline in copper prices and falling metal production in the 1980s, policies for food and agriculture were radically changed in the early 1990s under structural adjustment. In particular the loss-making National Agricultural Marketing Board (Namboard), which had a monopoly on grain marketing, was disbanded in 1990. Maize input subsidies were removed, and maize lost ground to cassava and other traditional crops. The government put the emphasis back on maize only recently.

However, for several years there was some confusion over policy as there was no clear vision of what to replace the previous system with. In due course the Food Reserve Agency (FRA) was founded in 1996, effectively restoring some of Namboard's functions.

But despite the country's general crisis of the time, rural poverty actually fell in this period, mainly because of the growth of non-maize crops:

> 'Following the major drought of 1991/92, the rural poverty rate increased to 92% in 1993. However, since this point, rural poverty appears to have declined markedly, to 83% in the late 1990s, and to 74% by 2003… a remarkable achievement considering the range of adverse processes affecting Zambia during this period, including high rates of HIV prevalence, declining copper revenues up to 2005, frequent drought, and the contraction of public budget support to agriculture… In the 1980s, up to 17% of the national budget was devoted to maize and fertilizer policies, while in the past two to three years, the government has allocated only 6% of its budget to the entire agricultural sector…
>
> 'The increase in urban poverty and decline in rural poverty is all the more interesting in light of evidence of reverse urban-to-rural migration.'[70]

The likely explanation was said to be 'the combination of growth of increasingly important food crops, such as cassava, sweet potatoes, groundnuts (and most likely, domestically consumed horticultural crops) as well as the export-led growth in cotton and tobacco.' Between 1991 and 2004, smallholders' sales of cassava increased at an annual rate of 5.2 per cent, those of cotton at 5.4 per cent and of sweet potatoes at 6.6 per cent, but their maize sales declined by 1.8 per cent a year.[71] 'It is indeed difficult to find sources of economic dynamism in Zambia that could explain this substantial reduction in rural poverty rates other than the

[69] McCulloch and Grover (2010), p. 31.
[70] Jayne *et al* (2007), pp. x and 16.
[71] *Ibid.*, p. 8 and Table 1, p. 11.

impressive agricultural growth registered for the non-maize crops,' according to another briefing.[72]

This switch in cropping patterns was facilitated by the launch in the early 1990s of new varieties of cassava, groundnuts and sweet potatoes, developed under public funding in the 1980s, before the cutbacks. Ever since 1961 there has been a steady growth in cassava production, while over the same period maize output has been volatile and erratic.

It is important to understand what was and was not done during the period of reduction in rural poverty before about 2005. The biggest reduction was in fertiliser subsidies for maize. According to another analysis,

> 'This policy [of increased commitment to investment in public goods] would thus require a shift of focus from the fertilizer subsidies and price support systems currently in place to the development of cost-reducing infrastructure…
>
> 'If, however, the government insists on participating directly in agricultural markets, it should be clear about its intentions to ensure predictability.'[73]

A general conclusion from the same team as this was,

> 'Smallholder oriented and high quality agricultural research, wide coverage of support services and strong and steady commitment to develop rural agricultural infrastructure, such as irrigation, roads and power, is indispensable to creating broad-based agricultural growth. All of these public goods investments played an important role in the agricultural-led structural transformation processes in Asia and other continents.'[74]

Another general *desideratum* is a stable policy environment, even though it was not present in Zambia during the 1990s.

Part of the growth in rural incomes came from growing cotton as a cash crop, which one-fifth of small farmers were doing by 2003-04. This was based on an outgrower scheme, rather than large commercial farms or foreign direct investment. Export horticulture performed poorly although horticulture for domestic consumption apparently expanded.

In 2010 there was a record large maize crop – attributed partly to fertiliser, but also to high prices guaranteed by the FRA. According to FAO/GIEWS, maize production in 2009 rose to 1.9 million tons, some 35 per cent above the 2005-09 average, and it was estimated to increase another 48 per cent in 2010 to 2.8 million tons, or twice the 2005-09 average. The national surplus of maize enabled the FRA to purchase nearly 900,000 tons of maize in 2010, some of which was meant for sale later in the year in order to counter the shortages and higher prices of food in the 'hungry' season. By November 2010 maize prices were 19 per cent lower than a year earlier. Informal maize exports to DR Congo also expanded.[75]

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[72] Govereh *et al* (2007), p. 3.
[73] Tembo *et al* (2009), p. 25.
[74] Govereh *et al* (2009), p. 13.
[75] GIEWS (2011E).

8. Case Study 5: Cambodia

Cambodia has made great strides in improving food security since its domestic conflicts ended in the late 1990s. Poverty and hunger are expected to remain for some time yet, but the country is considered to be generally food-secure. Over the last decade there has been a massive growth in agricultural production. Table 9 shows the record of five important crops.

Table 9 Growth in production of crops in Cambodia since 2000

	2000-03 average (thousand tons)	2009 (thousand tons)	Increase (per cent), 2000-03 to 2009
Paddy rice	4,165	7,586	82
Maize	202	924	359
Cassava	186	3,497	1,784
Vegetables	171	323	89
Sugarcane	179	350	96

Source: Runsinarith (2011), Table 8, p. 12.

Nevertheless, half of Cambodia's estimated 2 million farmers were adversely affected by the 2008 rice price crisis[76] and the country still has to make up a lot of ground before it and its rural people can catch up with its more prosperous neighbours.

Geographically, Cambodia is divided from north to south by the River Mekong and its delta. Agriculture is mostly rainfed, as in Africa: accounting for 90 per cent of the rice area, compared with 77 per cent in Thailand and only 40 per cent in Vietnam.[77] The Mekong is a valuable resource, but it is complicated by Cambodia having to share it with other countries which have dams either in place or planned upstream.

Despite the rapid growth of maize and cassava production, there remains a heavy dependence on rice as a staple food, accounting for 66 per cent of DES. The rice market is reported to be closely integrated, both from province to province and via informal trade with Thailand and Vietnam, including exports to both countries.[78] Most of the exports are of paddy rice, which is milled in the two importing countries, some of it then being re-exported back to Cambodia. According to Pandey and Bhandari, this indicates that costs of production in Cambodia are relatively low. Most of Cambodia's more limited formal exports are of high-quality organic rice, sold at premium prices to neighbouring South-east Asian and European markets.[79] However, the country's ambitious current rice strategy will probably require exports to some of the most food-insecure countries; in 2005 Sub-Saharan Africa imported 31 per cent of the world's traded rice.[80] And in 2009 Cambodia promised to export 120,000 tons to Senegal.[81]

In Phnom Penh, the capital, nominal prices of 'Somali' (high-quality milled) rice increased by 90 per cent in May 2008 from a year earlier, but elsewhere in the country the price rises were lower, at around 25 to 40 per cent from November 2007 to May 2008.[82] Prices reached a peak at about that time and then fell away, before returning to new, but lower, highs at the turn of

[76] United Nations (2008), p. 3.
[77] Pandey and Bhandari (2010), Table 12.3, p. 235.
[78] *Ibid*., pp. 244.
[79] *Ibid*., pp. 239-40 and 243.
[80] Gajigo and Denning (2010), p. 185.
[81] *Ibid*., p. 181.
[82] Pandey and Bhandari (2010), p. 244.

2009-10. By the end of 2010, in various parts of the country they had fallen to roughly where they had been in January 2007.[83] As in other countries, the potential benefits to farmers from higher cereal prices were substantially reduced, if not lost entirely, because of concurrent sharp increases in fertiliser prices.[84]

Runsinarith's study for UNCTAD argues that after Cambodia's experience with the food and economic shocks, the grand lesson was to revive agriculture, which had been neglected as the country aggressively pushed for a structural transformation towards export-oriented manufacturing.[85]

After a country visit in May 2009, the HLTF summarised the government's responses to the price crisis as follows:

> 'In March, 2008, the Government followed other Asian exporters in imposing an export ban on rice… Government expanded its own programs of targeted food distribution and agricultural input support, and mobilized additional donor resources. In September 2008, Government established a multi-ministerial Food Emergency Working Group to coordinate direct assistance to vulnerable households and smallholder farmers.'[86]

According to Runsinarith, 'The immediate effect achieved by the ban was the reduction in domestic price of rice by about 10 percent. By the end of May 2008, the government lifted the ban as soon as it anticipated that the following harvest would yield a surplus that would exceed domestic requirements.'[87]

Cambodia's social protection system includes food transfers, income-generating activities for the needy and conditional cash transfers.[88] It was supplemented in 2008 by programmes for school feeding, supplementary food and nutrition for mothers and children, and food-for-work.[89] However, this response was described by the HLTF's visiting team as 'less robust' than that for agriculture. Runsinarith calls for 'an overhaul in the government's social safety net system, though there admittedly is not much to restructure given the limited interventions in place. The imperative is to create a comprehensive and sustainable social safety net system with schemes that can be quickly mobilised in the event of a crisis.'[90]

However, Cambodia has one of the most coherent sets of policies for food security and agriculture, including the ambition of soon becoming a regular net exporter of rice. The operation of its national working group was presented as a model for others by the U.N.'s High-Level Task Force.[91] The overall policy for development is called by the government a 'Rectangular Strategy', because it comprises four sets of four policy fields. The first of these is called 'Enhancement of Agriculture sector' and its sub-components are:

1. Improving agriculture productivity and diversification;
2. Land reform and clearing of mines;
3. Fisheries reform; and

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[83] FAO/GIEWS National Basic Food Prices Tool, www.fao.org/giews/pricetool/ (March 2011).
[84] Pandey and Bhandari (2010), pp. 245.
[85] Runsinarith (2011), p. 25.
[86] HLTF (2009A), p. 1.
[87] Runsinarith (2011), p. 24.
[88] FAO (2010B), p. 2.
[89] HLTF (2009C), p. 70.
[90] Runsinarith (2011), p. 26.
[91] HLTF (2009C), Box 5, p. 20.

4. Forestry reform.[92]

The broad aim is to move from extensive to intensive agricultural development through an integrated approach, leading to higher rice yields and exports. As described by Hun Sen, the Prime Minister, in September 2008,

> '[T]he Royal Government's policy mainly aims at promoting agriculture productivity and diversification as well as land, fisheries and forestry reforms by addressing in package issues of agriculture technology, rural infrastructure such as roads, irrigation system and electricity and credits, markets and processing-technology, especially for exports. This requires institutional mechanisms and highly effective coordination for sector-wide progress and qualitative changes.'[93]

There is an emphasis on irrigation, and aid to be given to export sectors, including plantations and aquaculture. One feature is the System of Rice Intensification (SRI), under which the government has invested in better seeds and irrigation systems to boost rice exports: 'In Cambodia, more than 80,000 families now use SRI practices, which are reported as leading to a doubling of rice yields, substantial reductions in the use of fertilizers and agrochemicals, and increases in farm profits of 300 per cent.'[94]

Not only rice is supported. The World Bank's Country Assistance Strategy, extended in May 2008, supports increased production of rice, but also that of vegetables, meat and fish. Work is also going on in ecological approaches to agriculture and forest conservation.

But as in some countries of Africa, the government's open policy towards investment has led to social conflicts over foreign access to land. Cambodia's partners in this have been diverse, with interest reported from Kuwait, Qatar, South Korea and the Philippines[95] as well as the U.K.'s Tate & Lyle company, which invested in sugarcane there in order to diversify from its previous concentration on African, Caribbean and Pacific partners of the EU.

9. Case Study 6: Lao People's Democratic Republic

The Lao PDR was recently described as 'in the midst of a fundamental transformation' based on the rapid development of mines, plantations and hydro-electric dams.[96] In the last five years the annual growth rate has averaged 8 per cent[97] and over recent years the trade position has substantially improved, as we saw in section 4. However, Laos is landlocked and mountainous with a low density of population, and this resource-intensive development puts great pressure on agricultural land since only about 4 per cent of the area is arable and permanent crops cover no more than 0.35 per cent of it.[98] As the HLTF put it, 'The demand for land from dams, mines, trees and plantations often conflicts with the diminishing land … suitable for agriculture.'[99]

While Laos is well on the way to recovery from the conflicts of previous decades, they did leave the countryside 'littered' with unexploded bombs from the 1960s and 1970s. According to the FAO and WFP,

> 'Lao PDR is the most heavily bombed country in the world per capita (Indochina war). [Unexploded ordnance] contamination still affects 15 of the provinces and is still an issue

[92] Royal Government of Cambodia (2008), p. 11.
[93] *Ibid.*, p. 23.
[94] IFAD (2010), Box 16, p. 160.
[95] Minder (2008).
[96] Fullbrook (2009), p. 16.
[97] FAO/WFP (2011), p. 5.
[98] *Ibid.*, p. 6.
[99] HLTF (2009B), p. 3.

> for populations living in affected areas, as it prevents them from expanding their cultivation area.'[100]

However, Laos' food security status is much improved. Rice provides 64 per cent of DES[101] and about 90 percent of the arable area is devoted to rice,[102] most of it rain-fed. In 2008 the impacts of the food and financial crisis were not severe, but because of persistent, acute malnutrition and rapid utilisation of natural resources there was 'no room for complacency', according to HLTF.[103] No doubt partly in consequence of the scattered population, FAO and WFP wrote:

> 'Vulnerability and food insecurity continue to be characterized by highly localized small scale shocks, which may have severe impacts at the community and district level. As a result of incomplete recovery following Typhoon Ketsana in late 2009 and the 2010 drought and floods, food insecurity is still concentrated in the central and southern regions of the country.'[104]

Acute malnutrition has also arisen among the poorest groups in the ethnic areas, especially in the North, near the Vietnamese border.[105]

At their peak in September 2008 the national average prices of ordinary rice were 69 per cent higher than in December 2006 – a substantial increase, but less than in many countries. The reason given for the lesser impact of the crisis is Laos' relative isolation from world food markets. Again according to HLTF, 'There was less transmission of rice price increases into the Lao rice market, mainly because the main sticky rice staple is not imported and there are relatively few rice or other food imports or exports.'[106]

However, there was a further price surge during the course of 2010, leading the August 2010 price up a further 4 per cent on its September 2008 level.[107] By the end of the year the government had helped to bring prices down again by using rice reserves to balance supply and demand, and temporarily banning rice exports.[108] In early 2011 GIEWS reported that prices had stabilised in most of the country, but at a much higher level than before. 'For example, the price of glutinous rice quality no. 2 in Vientiane capital market recently was at LAK 7 000/kg, some 40 percent above the level in May 2010.'[109]

As we have seen, the government used its rice reserves to reduce prices. In late June and July 2010 it is reported to have sold more than 100,000 tons of rice from its stocks in Vientiane, the capital. The government approved LAK 50 billion (about US$6.2 million) for the rice stockpile and in 2011 it has announced a further LAK 50 billion for it, in order to keep prices stable at times of the year when they would normally peak.[110]

Besides rice there is in Laos a 'high consumption of wild foods such as vegetables, shoots, fruits, insects, wildlife, wild fish, and other aquatic animals. The WFP's Vulnerability Analysis showed that 'many households eat non-rice staples on a daily basis: 4 percent eat maize, 5 percent cassava and another 6 percent eat other roots and tubers.'[111] This tradition

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[100] FAO/WFP (2011), p. 27. See also Butler (2011).
[101] FAO/GIEWS National Basic Food Prices Tool, www.fao.org/giews/pricetool/ (March 2011).
[102] HLTF (2009B), p. 6.
[103] *Ibid.*, p. 1.
[104] FAO/WFP (2011), p. 4.
[105] HLTF (2009B), Box 1, p. 4.
[106] HLTF (2009B), p. 2.
[107] FAO/GIEWS National Basic Food Prices Tool, www.fao.org/giews/pricetool/ (March 2011).
[108] World Bank (2011), p. 77.
[109] GIEWS (2011C), p. 1.
[110] Pongkhao (2011).
[111] WFP (2007), p. 74.

provides considerable potential for better nutrition and food security, but it is recognised that the situation has deteriorated:

> 'Lao PDR produces about 400 000 tonnes (fresh-weight) of roots and tubers per year, consisting primarily of, in order of importance, cassava, taro and sweet potato. Anecdotal evidence suggests that, a few decades ago, rural communities used to grow much more roots and tubers for their own consumption and as a food that they could fall back on when paddy production was poor. Recently, communities have become used to an increasingly rice-based diet, often to the exclusion of roots and tubers. This trend may have been exacerbated by the Government's policy of equating increased food security solely with increased paddy production. Roots and tubers are now regarded principally as cash crops, to the extent that if there appears to be no market for them they may not be grown. Given the high productivity and relative moisture-stress tolerance of roots and tubers, food security could be greatly enhanced by their increased production for human consumption.'[112]

On the other hand, rice yields might have to increase further before this can happen. According to HLTF,

> '[B]ecause of insufficient storage facilities, farmers often have to sell at post-harvest time, when prices are low, and replenish stocks at pre-harvest time, when prices are high. Importantly, most farmers use all available land to grow rice, so if they want to diversify and at the same time maintain household food security, they will need to further increase rice productivity.'[113]

HLTF was impressed by the government's response to the crisis of 2008, in particular the 'seriousness' with which it sought to implement the National Nutrition Plan adopted in December 2008, and the 'REACH' pilot programme which was introduced to tackle child hunger and undernutrition.[114] There was also a new five-year food security strategy. The HLTF described the level of chronic malnutrition as 'alarmingly high', but the nutrition policy established a framework to improve nutrition by 2020, most importantly by committing the government and investors 'to abide by the findings of environmental and social impact assessments, and to follow the law, particularly in the hydropower, mining and plantation sectors, to prevent adverse impacts on nutrition.'

However, some other commentators have been less confident about the government's commitment. One argued that, although poor nutrition was placed at the top of the government's agenda, 'The policy will struggle unless food production and the integrity of the environment receive greater recognition for their value in contributing to national security.'[115]

According to HLTF, the 'government hopes to make food security and nutrition gains as a result of the expansion of industrial agriculture, especially plantations for rubber and pulp which have in some cases created good wages.'[116] In September 2010 a new Agriculture Development Strategy (ADS) 'for Sustainable Development, Food and Income Security' was adopted, covering the years 2011 to 2020. It aims at a transition from subsistence to commercial smallholder farming. A five-year Agriculture Master Plan is also under preparation with an Agriculture Investment Plan, as part of the 2011-15 National Socio-Economic Development Plan. At the time of writing, it was under consultation and not finalised yet. All of this allows the possibility of foreign concessions for rice farming, which in the government's view 'will enable Lao farmers to learn about new technology in rice

[112] FAO/WFP (2011), pp. 12-13.
[113] HLTF (2009B), pp. 6-7.
[114] HLTF (2009C), Box 6, p. 21.
[115] Fullbrook (2009), p. 80.
[116] HLTF (2009B), p. 3.

cultivation, processing and marketing.'[117] In important related areas of policy, Laos is heavily dependent on donors. But agricultural extension is donor-funded, as are provisions for social protection - which are rather fragmented, perhaps in consequence of this fact.

The language of the ADS' 'goals' is about food security and sustainability, but on its contents page markets are placed above sustainability and food security is not listed at all. This is reminiscent of the apparent difference between policy rhetoric and practical action in Tanzania. In Laos one could almost be forgiven for thinking that the environment exists merely for the sake of the economy. There are news reports of a massive irrigation programme accompanied by an equally large programme for hydroelectric power on the River Mekong, which flows down the length of the country into Cambodia and forms most of the frontiers with Thailand and Myanmar. An important decision was due as this paper was being written:

> 'By April 22, a regional decision by the Governments of Laos, Thailand, Cambodia and Vietnam will be made on whether or not to build the proposed Xayaburi Dam on the Lower Mekong River's mainstream. This dam is the most advanced in a cascade of eleven large hydropower dams planned for the Lower Mekong River's mainstream and would be located in Xayaboury province in Northern Laos. Millions of people in the region depend on the river's natural resources for their survival.'[118]

Critics say this dam could incur 'a "devastating" environmental and personal cost to surrounding communities', threatening 200,000 fishermen and farmers with displacement and reduced earnings.[119] One commentator wrote:

> 'Water, forests and fish will struggle to retain their vitality and sustain their richness because of the big consequences of the Big Push [for development]. This is eroding the resilience of food production and sacrificing environmental security for an uncertain return in the form of state revenue and jobs. Experiences and evidence suggest the environment will continue to be undermined in the future.'[120]

However, there is in Laos a lively movement for conservation agriculture and agroforestry. The National Agriculture and Forestry Research Institute (NAFRI) is one of several organisations operating in this area.[121] It argues that converting forest into monocultural land for maize can produce 15 years of tillage, but at the cost of reducing organic matter in the soil from more than 7.9 per cent to less than 2.8 per cent. NAFRI recommends that conservation agriculture should be included in schools' and universities' curricula. It argues that the following needs to be done to create an enabling environment for it:

- 'Structure farmer groups,
- 'Involve the national banking system, together with farmer groups and private operators,
- 'Structure market channels (cash crops, livestock and multipurpose species),
- 'Develop the environment for supply and sales networks (inputs and agricultural machinery).'[122]

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[117] Phouthonesy (2010).
[118] Rettet den Regenwald e.V., www.rainforest-rescue.org/mailalert/687/save-the-mekong-the-river-feeds-millions (March 2011).
[119] IRIN Asia (2011).
[120] Fullbrook (2009), p. 44.
[121] For more information visit www.cansea.org.la, a portal hosted by the Conservation Agriculture Network for Southeast Asia (CANSEA).
[122] Chanphengxay (undated), pp. 11, 44 and 47.

10. Underlying Issues and Lessons from Elsewhere

The inadequacies of the world's dominant farming system were laid bare in the 2008 price crisis. Dependence on unstable global markets, excessive and growing uniformity of the world's staple foods, and vulnerability to shocks appearing from those markets, are all features of this problem. Continuation further down this path only risks a further increase in the external vulnerability of many countries. It is time to think seriously about a new approach to agriculture and food security, which would reduce those vulnerabilities, restore the ecological balance in agriculture, reduce damage done to the atmosphere and help to improve farmers' livelihoods as well as increasing LDCs' food security. There are issues here that concern food supplies themselves and the inputs applied by farmers to their crops. Farmers in many places are unable to profit from higher crop prices because of the cost of inputs, which are also a drain on a country's balance of payments.

The industrial form of agriculture comes at a high environmental cost. Over a long period it causes damage to soil structures as a result of monocropping and the application of chemicals, as has been found in some of the Asian countries which went furthest with the Green Revolution of the 1970s and 1980s. These risks are highest where the soils are poorest, as in much of Africa. It is important to consider instead the varied ecologies that the process of evolution created and to work in harmony with them – as generations of local farmers and pastoralists did in the past. This reveals that the most effective form of agriculture in tropical countries, and Africa especially, is very different from those that are generally recommended and which are developed in the temperate North.

The food price shocks, and the failure in many places of farmers to benefit from higher prices, are elements of a wider agricultural crisis. Agriculture has become so unremunerative that young people in countries at all levels of development are going into other lines of work rather than following their parents on to the family farm. I know of no systematic research on this, but the anecdotal evidence is overwhelming: in country after country – Kenya, Nigeria, China, France, the U.K., to name but a few – one hears of an aging agricultural population and a failure of young people to stay on the farms. I have even heard of it in relation to South Korea, where agricultural subsidies are some of the highest in the world. As an Indian commentator remarked,

> 'The biggest and the most fundamental crisis agriculture faces is the low economic viability of the farms… The issue is not how much growth we have in agriculture… The country [India] has to come out of the obsession with agricultural growth. The critical issue that is linked to sustained production levels is the precariously low farm incomes.'[123]

If farm incomes (as distinct from food prices) do not increase sharply over the next few years, we might all soon be wondering who will grow the food that the rest of us want to eat. Indeed, the situation can lead to unfortunate biases in policy, due to the huge disparity in many countries between the social importance of agriculture and its economic importance. In Zambia, for example, the agriculture sector employs around 85 per cent of the labour force but accounts for just 17 per cent of GDP.[124] That may partly be what has led agriculture to be so widely neglected, since economic success is usually measured by growth in GDP, which is weighted in this way towards the industry and service sectors. That no doubt is one of the explanations for the co-existence of rapid economic development with continuing rural poverty in countries like China and India.

This has a direct bearing on the immediate measures that were used, with widespread donor support, in order to cope with the price shocks in 2008. Most of these measures were short-term in nature. Some of them were well-merited, but their effectiveness for the future can

[123] Devinder Sharma, interviewed in *OneWorld South Asia* (2011).
[124] Marone, Thelen and Gulasan (2009), p. 41.

only be judged in relation to any later crisis of a similar sort (including the further run-up in world cereal prices since July 2010). According to a recent study,

> 'The most-used policy response in agriculture was the provision of agricultural inputs. The provisional estimate for Africa's short-term needs, made by the Comprehensive Africa Agriculture Development Programme (CAADP) in May 2008, was [US]$1.29 billion, including $112 million for seeds and $749 million – nearly 60 per cent of the total – for fertilizers. Through the IFSP [*sic*] [Initiative on Soaring Food Prices], FAO distributed agricultural inputs to some 370,000 smallholders in more than 80 countries. Out of 40 countries assisted under its Global Food Crisis Response Program (GFRP), the World Bank assisted 20 with the provision of agricultural inputs.'[125]

In Benin, one of our case study countries, this report states that inputs represented 90 to 100 per cent of such funding. But despite claims to the contrary, it would appear that the free provision or subsidisation of fertilisers and other inputs to farmers is not the most effective way to promote food security in the long term. The reduction in rural poverty in Zambia during the 1990s, in the face of a very adverse economic climate, suggests that it is better for governments to spend on infrastructure, extension, and research and development than on inputs. In Africa, one of the biggest requirements is for roads, to assist the development of both domestic and cross-border trade in food and other products.

We should warn also against big swings in policy, such as the premature ending of even temporary subsidies, or suddenly changing a policy without regard to the possible impact on the next crop season. The uncertainty arising from this caused serious problems with Zambia's maize supply in 2010. And the United Nations Children's Fund (UNICEF) considered 26 developing countries to have reduced or ended food subsidies prematurely in 2009 and 2010. In the light of more recent events, it is interesting to note that they included Egypt, Libya and Tunisia.[126]

Traditional foods

The combination of the climate crisis with the food price crisis should give particular pause for thought about the ways in which agriculture is pursued. The effects of climate change are already being felt, for example in the severe floods in Benin and Pakistan in 2010 and in Laos in 2008, and the droughts in 2010 in Russia and the Ukraine, in 2009 in Northern Kenya and Somalia, and in 2007 in Australia. The greater *irregularity* and uncertainty of rainfall is a further sign. Measures to address price and production issues should not risk aggravating the climate crisis. Climate change requires two things in this area of policy: to build resilience to the stresses it causes into production systems and the crops themselves; and also to reduce the emissions of greenhouse gases from agriculture, which is an important source of those emissions. Any action which can serve both purposes together is especially valuable.

It so happens that many indigenous crops are more resilient to stresses such as reduced or irregular rainfall than are the main internationally traded cereals, wheat, rice and – especially - maize (despite the many other virtues which make that crop so important in much of Africa[127]). However, traditional crops' production yields tend to be lower, at least under present conditions - if only because less research has been put into increasing those yields.

However, the emphasis on a small number of internationally known crops has not only caused environmental damage but in many places impoverished people's diets, as the Deccan Development Society (DDS) wrote with reference to the Green Revolution in India:

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[125] Mousseau (2010), p. 23, citing report of CAADP regional workshop, www.nepad-caadp.net/pdf/Pretoria%20Workshop%20over%206.pdf.
[126] Ortiz, Chai and Cummins (2011), Table 3, p. 26.
[127] See McCann (2001) for the long history of maize's adoption as a major staple crop in Africa.

> 'In the past decades, the Green Revolution and the „government seed" have largely suppressed *Satyam Pantalu*, the traditional farming methods with its diversity of adapted and nutritious plants. Whereas over 80 different varieties of millet, grain, pulses and lentils were used in the 1960s, today only 20 to 25 remain… And whereas on average more rice and wheat are available per head, the available daily ration of important providers of vitamins such as lentils and pulses has halved. This means that although there is more food, nutrition has deteriorated.'[128]

Millets contain more proteins, minerals and vitamins than wheat or rice and are more resilient, requiring less water to grow. But while Indian rice production has increased by 125 per cent and wheat production by 285 per cent since the late 1960s, millet production has barely changed at around 18-20 million tons per year.[129] In Africa too, millet has been neglected. The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) made a case for another side of overlooked traditional food cultures:

> 'In the past, many traditional foods were gathered from forests and woodlands, which provided rural households with food and nutritional security. With the loss of habitat through deforestation, population growth, increased urbanization and poverty and an emphasis on staple food cultivation, this wild resource has diminished. In addition, improved access to other food crops and purchased foods … have contributed to the trend towards diet simplification, reduced fresh food supply, and disappearance of nutrient rich indigenous food. This simplification has had negative impacts on food diversity and security, nutritional balance, and health. Indigenous fruits and vegetables have been given low priority by policy makers, although they are still an important component of diets, especially in Africa.'[130]

But not only in Africa: the HLTF's Country Visit report on Laos reported that 'Household surveys show that collecting more food from the forest was the most frequent coping strategy' in 2008.[131]

So a return to a greater variety of sources of food, including traditional crops, could improve nutrition. Indeed, at a recent conference on the topic in Arusha, Tanzania, 'The total number of species presented was enormous. The sheer number of underutilized species that could contribute to peoples' food security presents a big challenge for work on these crops.'[132] This is because they tend to be part of submerged, local food cultures. In recent years much research has been done in this area, but it needs to be better known. Between 1996 and 2008 the U.S. National Research Council published three volumes called 'Lost Crops of Africa', providing information on 10 cultivated grains, several wild grains, 18 vegetables, 10 cultivated fruits and 14 wild fruits.[133] Many of them are familiar names that are still widely used (for example, sorghum, teff, baobab and enset or false banana), but some have fallen into disuse. And research into all of them has been neglected, while their culture has not been widely recommended by agronomists and extension agents. Many of them are disdained as 'poor men's crops' or suffer from unflattering English names given in colonial times, such as

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[128] Deccan Development Society (2005), p. 8.
[129] Millet Network of India (undated).
[130] IAASTD (2008), p. 155.
[131] HLTF (2009B), p. 2.
[132] ISHS (2008), p. 3.
[133] National Research Council (1996, 2006 and 2008). The cultivated grains are: African rice, finger millet, fonio (or acha), pearl millet (various types), sorghum (various types), teff, Guinea millet, emmer, Ethiopian barley, Ethiopian oats and kodo millet. The vegetables are: amaranth, bambara beans, baobab, celosia, cowpeas, dika, African eggplant, egusi, enset, lablab, locust beans, long beans, marama, moringa, native potatoes, okra, shea and yambeans. The fruits are: balanites, baobab, butterfruit, carissa, horned melons, kei apples, marula, melons, tamarinds, watermelons, aizen (or mukheit), chocolate berries, custard apples, ebony, gingerbread plums, gumvines, icacina, imbe, medlars, monkey oranges, star apples, sugarplums, sweet detars and tree grapes. A freely available source of information on 20 of these crops is Worldwatch Institute (2011).

cowpeas, custard apples and monkey oranges. But their virtues for nutrition, food security, rural development and sustainable landcare are numerous. Cowpeas, for example, are recommended for their high protein content, leaves and stalks that make nutritious animal fodder and roots that provide nitrogen to depleted soils. They also give food during the annual 'lean period' at the end of the rainy season.[134] The versatility of some of these crops, as shown in the example of cowpeas, is another recommendation.

The International Institute of Tropical Agriculture (IITA) has made these recommendations to Africa for avoiding the economic risk that another food crisis would provide:

> 'In Sub-Saharan Africa, governments should promote the utilization of non-tradable crops such as cassava, sorghum, millet, yam, cocoyam, banana and plantain, cowpea and bambara nut as substitutes to corn [maize] and rice, which are prone to global price fluctuations. These could be supplemented by small livestock such as goats and sheep to supply the required nutriments to families in poor communities.'[135]

Agroecology

Agroecological methods provide alternatives to applying minerals and chemicals for soil nutrition and crop protection, offering both economic and environmental benefits. We have already mentioned the cost to farmers of rising prices of fertilisers, even while cereal prices were also going up. In Cambodia the cost of fertilisers almost tripled between January and November 2008, leading to a 'substantial increase' in the price ratio between nitrogen inputs to the soil and paddy rice outputs. Averaged year by year, that ratio increased from 4.1:1 in 2004 to 5.8:1 in 2008.[136]

What is on offer instead has been described as the 'functional use of biodiversity', combining research at the genetic, species and ecosystem levels rather than working on genetic improvements alone.[137] One area which combines these approaches is agroforestry: using trees in conjunction with agriculture to improve both output and sustainability. As 2011 is the International Year of Forests, it seems an appropriate time to promote this. An interesting example is the placing of *Faidherbia* acacias (or 'fertiliser trees') among crops. They give shade – which in tropical conditions can increase the yields of many crops over those found under direct sunlight – and shed their leaves during the early rainy season, releasing nitrogen into the soil, and then remain dormant throughout the crop-growing period. It is reported that, 'In Malawi, maize yields are typically 2-3 times higher when the crop is grown under a canopy of *Faidherbia*.'[138] Learning from this example, the U.N.'s Special Rapporteur on the Right to Food argues for a gradual shift from subsidising mineral fertilisers to using agroforestry instead:

> 'An optimal solution that could be an exit strategy from fertilizer subsidy schemes would be to link fertilizer subsidies directly to agroforestry investments on the farm in order to provide for long-term sustainability in nutrient supply, and to build up soil health as the basis for sustained yields and improved efficiency of fertilizer response.'[139]

The sober prose of IFAD's *Rural Poverty Report* becomes enthusiastic when it summarises the results of agroforestry and other forms of conservation agriculture:

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[134] IITA (2010) and *Afrol News* (2010).
[135] IITA, 'Surviving the Storm: How agricultural research could help Africa weather another food crisis', December 13th, 2010, www.iita.org/news-asset/-/asset_publisher/9MZf/content/surviving-the-storm-how-agricultural-research-could-help-africa-weather-another-food-crisis?redirect=%2Fnews (February 2011).
[136] Pandey and Bhandari (2010), p. 242, including Table 12.8.
[137] Pimbert (2010), p. 2.
[138] WAFC Annual Report, p. 8.
[139] De Schutter (2011), p. 9.

> ‘[I]n countries such as Ghana and Zambia, between 200,000 and 300,000 farmers are applying elements of conservation agriculture practices. In all regions [including Latin America and India], the results are similar: immediately higher and more stable yields that are less susceptible to crop failure due to better water absorption and more timely operations; and in the medium term, improved soil structure and fertility gains and reduced requirements for labour and machinery.’[140]

But until recently, all these possibilities have been overlooked by tropical agricultural research. They are still ignored in much of the international debate on agriculture and food security. As was recently remarked,

> ‘Most agriculture development research is paid by the agro-business and therefore concentrates on northern crops. For indigenous African crops, on the other hand, there barely exists a commercial market as most are grown for subsistence. With private capital thus shying away, African governments with their very limited science budgets cannot keep up paste [*sic*] to establish a home-grown research environment looking into own crops.’[141]

However, productive international research establishments exist in the field of traditional crops, as well as the World Agroforestry Centre in Nairobi. The IITA is based in Ibadan, Nigeria, while Tanzania hosts the World Vegetable Center’s Regional Center for Africa in Arusha.[142] Its Regional Center for Asia is in Thailand. In Vietnam, Laos and Cambodia the Center has introduced new varieties of soya, yardlong beans, eggplants (aubergines), tomatoes, Chinese cabbages and water convolvulus. It has offices in all four of the African case study countries and works there on value chains and the consumption of indigenous vegetables, as well as improved varieties.

Besides making poor use of the locally available resources, most conventional research fails to mobilise farming communities’ existing agricultural knowledge. When farmers are consulted on methods of soil nutrition and pest control, rather than told what scientists think they ought to know, the results can be striking. After research in Zambia and Malawi into the substances in wild plants that can control insects and other pests, it was reported: ‘We found that most farmers were very knowledgeable about the pesticidal properties of a large number of plants…, although they use relatively few on a regular basis.’[143] One summary of the situation reached this pessimistic conclusion:

> ‘The use of traditional seeds is declining in West African farming. The use of organic manure is also declining, and trees in fields are being excessively felled. Agriculture in West Africa is increasingly based on the use of imported fertilisers and pesticides. The agricultural research system is dependent on external funding. As a result, research on agriculture is externally oriented, and this is detrimental to family farming.’[144]

The U.N.’s Special Rapporteur sums up the benefits of agroecological production as follows:

> ‘[T]he diversity of species and of farm activities that agroecological approaches allow are ways to mitigate risks from extreme weather events, as well as from the invasion of new pests, weeds and diseases, that will result from global warming. The agroecological practice of cultivar mixtures bets on genetic diversity in the fields in order to improve crop resistance to diseases. In the Yunnan Province in China, after disease susceptible rice varieties were planted in mixtures with resistant varieties, yields improved by 89 per

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[140] IFAD (2010), p. 159.
[141] *Afrol News*, ‘“Science ignores Africa's native crops”’, November 2nd, 2010, www.afrol.com/articles/22332 (February 2011).
[142] Previously known as the Asian Vegetable Research and Development Center, or AVRDC.
[143] WAFC Annual Report, p. 31.
[144] Pimbert (2010), p. 2.

cent and rice blast disease was 94 per cent less severe than when the varieties were grown in monoculture, leading farmers to abandon the use of fungicidal sprays.

'Agroecology also puts agriculture on the path of sustainability by delinking food production from the reliance on fossil energy (oil and gas). It contributes to mitigating climate change, both by increasing carbon sinks in soil organic matter and above-ground biomass, and by avoiding carbon dioxide or other greenhouse gas emissions from farms by reducing direct and indirect energy use.'[145]

The U.N. Environment Programme gives a similar example from India: '[I]nter-cropping of rice with pigeon pea, groundnut and blackgram, approximately tripled the yield of crops (rice and alternative crops) vs. rice alone.'[146]

Farmer field schools

Some fieldworkers have turned extension into something more like a seminar than a lecture or demonstration, encouraging the advisors and the farmers to learn from each other, or the farmers simply to teach each other. Again the results can be powerful. The system, known as farmer field schools (FFS), was invented in Indonesia but, as with agroforestry, Tanzania is also at the forefront of it. This is what IFAD reported:

'FFSs were found to be especially beneficial to women, those with low literacy levels and farmers with medium land size. Impacts on farmers with small land area were weak, probably because such farmers are resource-poor and have limited capacity to invest in FFS technologies. Overall, participation increased income by 61 per cent in the three countries [Kenya, Tanzania and Uganda], with differences at the country level. The most significant change was seen in Kenya for crops (80 per cent increase) and in the United Republic of Tanzania for agricultural income (over 100 per cent increase). FFSs proved to be able to adapt to new information, markets and policies. The experience also influenced rural development approaches in the region – Uganda and the United Republic of Tanzania are making strong moves towards institutionalizing FFSs as the main public extension approach.'[147]

The comprehensive literature review conducted for the global IAASTD project yielded a similarly enthusiastic appraisal:

'Evaluations of FFS programs indicate that FFS participants increase their productivity, reduce pesticide use, lower costs, and show remarkable signs of empowerment… The effect is so remarkable that the most effective way to convince politicians and senior civil servants of FFS impact is to expose them to an FFS in action. Such visitors quickly grasp what the FFS can do in terms of enlisting the elusive small-scale farmer in the national project.'[148]

The same report reached this broader conclusion about agricultural research, agrarian change and the role of farmers in them:

'For a very long time, agricultural research has largely been thought of as the domain of scientific experts, with farmers at the receiving end of the research outputs. If a variety or an idea fails, farmers are often blamed for their "ignorance and inability" to farm

[145] De Schutter, O. (2011), p. 13.
[146] UNEP (2011), p. 70.
[147] IFAD (2010), Box 22, p. 176.
[148] IAASTD (2008), p. 484.

correctly. The question is rarely asked: Is there something wrong with the research itself?'[149]

In Benin, the Adja Plateau in the South-west was the location of one of the first places worldwide that drew attention to local farmers' capacity to undertake their own informal research, both to test and improve maize varieties and to restore soil fertility:

> 'Many Adja farmers have found out that improved maize varieties are not drought-resistant, require fertilizer or fertile soil, do not store well, or are even unsuitable for consumption. They modify some innovations through informal research to generate an intermediary technology based on both external knowledge and their own knowledge.'[150]

More recently this was reported in the IAASTD Global Report: 'Innumerable examples exist of effective technological advances pioneered by farmers themselves; e.g., … soil management and farming system development in the Adja Plateau, Benin.'[151]

Coming back to the immediate responses to the 2008 price crisis, we find another author suggesting that money at the time was better used for the development of traditional crops than the subsidisation of inputs:

> 'Agricultural experts in Ethiopia argue that the weakness of the seed sector … should have encouraged part of the spending on seeds… FAO followed this different approach in certain countries, such as Niger, where it worked at developing seed multiplication of improved varieties of local crops such as millet and sorghum. Following this approach elsewhere would have resulted in a stronger and more sustainable impact than just fertilizers… in several instances input programmes diverted development money that was earmarked for rural development and construction of infrastructure.'[152]

In summary, a concerted attempt to encourage farmers to build on their own knowledge, and to promote traditional foodstuffs and agroecological ways of farming, can lead countries on to a virtuous circle of:

1. reduced vulnerability to imported market shocks;
2. higher yields achieved in a way that works *with* nature rather than against it;
3. increased resilience to environmental threats, especially climate change, without creating a further dependence on imported technology;
4. enabling farmers to benefit fully from higher prices because fewer inputs have to be bought, and therefore their production costs are lower and they can invest more in making further agricultural advances;
5. greater diversification of farming households' incomes and nutritional variety;
6. a reduction in the foreign exchange costs of agriculture, through the lesser use of imported inputs; and
7. maintaining local control over seed supplies.

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[149] IAASTD (2008), p. 83.
[150] Dangbegnon and Brouwers (1990).
[151] IAASTD (2008), p. 78, citing Brouwers (1993).
[152] Mousseau (2010), p. 26, citing F. Mousseau (2009).

India and China

Two vitally important countries in the world's agricultural system are India and China, and both of them face continuing rural poverty in spite of the rapid growth of their urban economies. Between them, they account for half of the world's agricultural population, and their responses to the food price crisis are instructive. In China, there hardly was a price crisis in 2008 for either of its main staple crops, rice and wheat:

> 'For rice, the price of Thai 100%B second grade, FOB Bangkok (the benchmark price for rice in international markets) in May 2008 reached a monthly peak … almost triple its level in May 2007. By contrast, the domestic price of rice in China rose by only 9 per cent (in nominal terms) for japonica and 12 per cent for indica rice from May 2007 to May 2008… China also avoided domestic prices surges for wheat and maize… Average domestic prices for wheat and maize were only 17 and 23 per cent higher, respectively, in 2008 than in 2006, compared with increases of 51 and 61 per cent on world markets (in Chinese yuan terms).

On the other hand, the Chinese soya sector is integrated in the world market and domestic soya bean prices rose by 86 per cent from 2006 to 2008, while world prices increased by 75 per cent in yuan terms.[153] The stability of the Chinese grain markets was achieved by a long-term policy of support for grain production, behind which lay a determination by China's authorities to remain independent of world markets for food:

> 'In the 1980s … (t)he government judged that there would be large risks involved in greater integration with world food markets, especially for a country of China's size and income level…
>
> 'This meant that the Chinese government needed to push and/or encourage China's farmers to grow more grain to maintain a higher degree of grain self-sufficiency than they would have done under free market conditions. This imposed high costs upon the Chinese economy. However, the government judged that the costs were worth bearing in reducing China's dependence on the international economy.'[154]

In 2008, a similar attitude led the government to impose strict controls on foreign trade in rice, wheat and maize. It has been argued that:

> 'The main factor that contributed to grain market stability in China during the world food crisis was a long-term policy of support for grain production… During the global food price surge, China significantly increased support to grain production and achieved a fifth consecutive year-on-year increase in grain production in 2008. China's experience has clear policy implications for food security: the government should increase investment in the agricultural sector, including expansion of rural infrastructure, to promote agricultural productivity. Despite increased costs of production, especially for fertilizer, Chinese farmers' net income in producing rice, wheat, maize and soybeans increased [during the food price crisis] due to both increased productivity and significantly increased subsidies.'[155]

Much the same has been said for India, which operates a series of policies to stabilise rice and wheat prices both for farmers and consumers:

> 'Government intervenes in the food grain market through its price and procurement policies. At the farmer front it sets the [Minimum Support Price] to ensure remunerative

[153] Fang (2010), p. 267.

[154] Nolan (1995), pp. 183 and 184.

[155] Fang (2010), p. 271.

returns to the farmers. This producer price policy plays a crucial role in supporting the growth in rice output…

'Another aspect of government intervention is via an array of input subsidies for farmers that have been initiated since the time of the Green Revolution. Rice … receives a large amount of heavily subsidized inputs ranging from canal irrigation and power for groundwater irrigation to fertilizers…

'[T]he government intervenes at the consumer end via its procurement, stocking and distribution policies … the rice mills are obliged to sell a certain proportion of their milled rice … to the state agency at a predetermined price, which is often lower than the market price… The food thus procured is stored and distributed at subsidized prices to meet the consumption needs of the poor via the PDS [Public Distribution System].'[156]

These two countries are very important because between them they account for more than half of the world's rice production.[157] Their influence on the world markets therefore matters. Their policies for food and agriculture also provide an example for others to follow. However, one reason for their economic success lies in the two countries' sheer size, each of them having a population that is greater than the whole of Sub-Saharan Africa. It is unrealistic to expect a small country like Burundi or Laos to generate on its own all the benefits for development that India and China can, without cooperating with their neighbours in order to create economies of scale. However, another reason for the success of China's and India's food security policies lies in their long-term consistency.

Restrictions on trade

The bans and other restrictions imposed on grain exports in 2007-08 by certain governments, including those of China and India, have been widely criticised on two main grounds. Firstly, they can exacerbate food security problems in the countries that import the grain, for example in Kenya after Tanzania's maize export ban. But this is essentially Kenya's problem – a matter of getting the right balance between its domestic food needs and a large (and notably successful) agricultural export sector. But maybe Kenya has leant too far on the export side over the years, putting its own food security in peril. However, this also points to the importance of *regional* trade, as a substitute for the breadth of supply available in very large countries such as India and China.

Secondly, by reducing the extent of a price surge, an export ban risks dampening the possible supply response in its wake. This argument has frequently been made, but it implies that the price surge itself is desirable, despite its possible consequences in food security and even social and political order. Big price surges *need* to be dampened – or, better still, avoided, for just those reasons. On the other hand, increasing staple food imports, or cutting tariffs on food items in order to facilitate imports, has been widely *recommended* as a short-term remedy even while export bans were criticised; but it surely has just the same effect on domestic prices, so it seems illogical to support one of these measures on these grounds but oppose the other. The strongest argument against export restrictions lies in their possible effect on potential importing countries.

In the long term, however, many developing countries have found their food security damaged by the reduction of barriers to food imports from global markets, which was frequently imposed under structural adjustment. Even where the imported foods were not subsidised in the producing countries, this could cause damage if domestic food producers were not given the time or the means to adjust to such new sources of competition. That is particularly

[156] Gulati and Dutta (2010), pp. 279 and 281-82.
[157] *Ibid.*, p. 275.

important in countries where a large part of the population relies on agriculture for its livelihoods.

Restrictions on trade can be defended on the grounds that each government is responsible for making sure that its *own* people get fed. However, this does not mean that it should refuse to cooperate with its neighbours, nor is it a call for self-sufficiency in food supplies: while the latter may be feasible in countries as big as China and India, smaller countries (including perhaps every country in Africa) do not enjoy sufficient economies of scale, and can best substitute for them by pursuing regional trade. Even informal cross-border trade in food products can be very useful in smoothing out gluts and shortages between one country and another. Steps have been taken in parts of the continent, for example the creation of the East African Common Market in July 2010 (with Burundi and Tanzania as two of its five members). This would expand upon Lindani Ndlovu's eighth recommendation in his case study on Tanzania and Zambia for UNCTAD:

> 'Economies grow mainly through expansion of production. A major driver that can push growth is the growth of domestic demand. Countries should encourage growth of their domestic markets as drivers of growth and bases for growing their production. This strategy can help weaken the impact of external shocks and insulate commodity export producers.'[158]

Regional agricultural policies can also be considered, and indeed the African Union's CAADP initiative can be seen as a first step towards that, on a continental scale. A successful precedent for a regional agricultural policy, aimed in the first instance at food security, was the Common Agricultural Policy (CAP) of the European Economic Community.

Food stocks and food reserves

A central element of many successful food security policies has been the use of national food reserves. This practice is probably as old as the Chinese state itself, and before that it was used by the Pharaohs in Ancient Egypt. The European CAP of the 1970s and 1980s relied on so-called 'intervention stocks' of agricultural products, and we have already seen the role played in modern India by a national food reserve redistributed to poorer citizens. Of China too it has been written:

> 'Food security is national security in China, so the exact size of the wheat stockpile is regarded as a state secret, but the FAO estimates it at about 55 million tons. Others claim that privately held reserves could add 30 million tons to that figure… This policy tool has helped largely insulate China's domestic grain markets from the ups and downs of world markets, to the benefit of both China and the rest of the world. Although we can't predict that China won't disrupt the global grain supply through imports, we know that unlike countries without reserves, they have the wherewithal to meet their domestic needs themselves.[159]

By buying stocks when prices are low and releasing them when there is a scarcity or prices are high for another reason, food reserves help the stabilisation of prices as well as food security – and can be run at a profit, if managed properly. Of Zambia it has been written, 'When FRA [Food Reserve Agency] sales are confined to periods of relatively high prices as they generally are with some notable exceptions, these results suggest that they have a stabilizing effect on market prices.'[160]

[158] Ndlovu (2011), p. 41
[159] Harkness (2011).
[160] Chapoto and Jayne (2009), p. 21.

Food reserves do not have to be national. Under the European CAP before it was reformed, intervention stocks were run by each member state but under rules that were agreed by all states jointly. Whatever actual form the food reserve should take – and the CAP was designed to meet West European needs in the 1960s, not LDCs' needs 50 years later – a similar combination of national or local stocks with joint regional decision-making can be advisable. However, they should be fully under the control of the country or countries that they are meant for. There have recently been proposals to create a global food stock, but that would remove from national governments the control that they themselves need over food security. Donor agencies can by all means be invited to advise on the establishment and running of food reserves, but they should not own them or control them.

Food aid

A comparable danger is faced with the practice of external food aid. The international Food Aid Convention was established in 1967 and is due shortly for renewal, its latest version dating back to 1999. However, there is no consensus about the form it should now take among the eight, mostly developed countries or regional groups which are signatories to it.[161] An original purpose of the Convention was to enable some of those countries to offload agricultural surpluses, and it is still used in that way by some powerful members. But it has long been recognised that the delivery of actual food to those in need, while often necessary in an emergency, can be harmful in the long term because it undermines the capacity of a country, region or household to produce enough food to meet its needs: a similar argument to that put forward above about the effects of food *imports*. An example of recipients' attitudes to it is found here: 'Overseas Development Institute (ODI) research conducted in 2008 in Ethiopia pointed out that food aid was the least preferred intervention for pastoralists, who, instead of handouts, called for measures to limit the volatility of food prices.'[162]

Many important donors, including the EU and its member states, therefore no longer supply food-in-kind for humanitarian needs but money to purchase food, preferably on local or regional markets. The World Food Programme, the principal agency distributing food aid, is also moving in this direction. However, the very presence of food aid can lead the needy into long-term dependence on it. For example, the WFP has been active in the Karamoja region of North-eastern Uganda since 1964, but the region's problems of conflict and malnutrition remain unsolved.

Most of the countries which have achieved food security did so by their own means, not that of an external agency. A classic example is India, which periodically suffered famines until the 1960s. It overcame them through a combination of agricultural policy – pursuing the Green Revolution to increase domestic supplies of staple foods – and the Public Distribution System (PDS) which was briefly referred to above. LDCs would be well advised to emulate these policies rather than accede to an expansion of externally administered systems.

Social protection

Much the same caution should apply to social protection programmes. They are not the topic of this paper, and little therefore will be said about them. However, questions of dependency and control also apply. India's PDS is such a programme since it provides food for those who need it. It has come under criticism recently, but at least it is an Indian system which Indian policy debates can determine. In other countries, food aid programmes have expanded from simple food distribution to more intrusive schemes such as school feeding programmes. A good case can be made for these since they ensure that schoolchildren get at least one nutritious meal per day and they provide a strong incentive for poor parents to send their children to school. However, any country's schools are part of the national system and they

[161] Argentina, Australia, Canada, the European Union (EU), Japan, Norway, Switzerland and the United States.
[162] Mousseau (2010), p. 20.

should be fully subject to domestic authorities. External agencies may be helpful in assisting with school meals, but actually running the programmes risks overstepping the mark between assistance and interference.

11. Conclusions and Policy Recommendations for LDCs and their Development Partners

Most of the policy measures adopted in 2008 were short-term and *ad hoc*, when what is needed is long-term policies at the global, national and regional levels. This section will therefore propose various mechanisms to address food security and price volatility as they affect LDCs in the long term. Some of these might be suitable at more than one of the three levels, depending on circumstances, but each one is placed here at the level that seems most generally suitable.

Global:

1. Whose responsibility is food security? It should be accepted as the right of national governments to take final responsibility for their own people's food security, and the policies required to achieve it.

2. Thorough and concerted regulation of international commodity markets, sharply reducing the amount of financial speculation permitted on them. In particular, it should be made illegal in all financial centres to purchase food commodities or futures contracts in them with the primary purpose of medium- or long-term financial investment – a modern form of hoarding.

3. The use of global stocks, or production or trade quotas, should be reconsidered with a view to improving the balance of supply and demand on particular markets. But this is not a call for a global food reserve, and these stocks should only be used for market intervention.

4. Greater leeway should be permitted for border controls to be used to regulate flows of agricultural trade, the porousness of many international borders notwithstanding.

5. Compensatory finance for externally generated commodity market shocks should be reconsidered. The EU's former Stabex fund compensated developing countries for shortfalls in foreign exchange earnings that arose from price changes on export markets. A new scheme should provide compensation first and foremost for market shocks that affect prices of imported food.

6. Ensure that all food aid is provided in monetary form, not in-kind.

Regional

Only two measures are recommended at this level, but they are two of the most important.

1. Give precedence to food and agricultural trade with neighbouring countries over that with global markets.

2. Co-operate to establish and run large, regionally or nationally controlled food reserves. They should be used actively to stabilise the most important markets as well

as to provide food relief to citizens deprived of food security in natural disasters and other emergencies.

National:

1. The general approach should be people-centred, not market-centred. It should concentrate on *who* is at risk and how to support them. Markets, including global markets, are of vital importance; but they are means to an end, not the end itself. The food price crisis demonstrates how fallible they often are in agriculture and the food trade.

2. The government has a large supportive role to play in areas like crop science, extension and infrastructure.

3. Policies should be stable, supportive and based on rules. For example, rules for food reserves and government interventions in exports and imports need to be clear, specific and known well in advance, in order to avoid the danger of unforeseen disruptions.

4. Wherever appropriate, switch incentives to encourage the production and consumption of 'non-traded' crops rather than the global ones that can be subject to worldwide market shocks. In Africa it is recommended to move away from any excessive promotion of maize, rice and wheat, and even in Asia much can be lost with an excessive emphasis on rice alone – as we saw in examples from Laos and India.

5. Be prepared to use subsidies and price supports to stimulate production and ease consumption, and smoothe out price changes.

6. Outgrower schemes can work for cash crops, as with cotton in Zambia. But do not expect to be able to rely in the long term on foreign land acquisitions, foreign direct investment in agriculture in general, or large-scale commercial farming. Export horticulture has shown only limited success in LDCs where it has been tried.[163] It is preferable to grow indigenous vegetables for *domestic* nutrition, not out-of-season temperate vegetables for export.

7. Build up agronomic resilience and ecological sustainability, using traditional knowledge and crops, and agroecology. Value existing knowledge, built up over generations of farming and food production. Learn about it in good part from the farmers who possess it and whose parents and grandparents used it.

8. Reduce reliance on mineral and chemical fertilisers with the use of green manures, agroforestry and other ecologically sustainable techniques.

9. Use research and extension practices such as farmer field schools, in which farmers will learn from each other as much as from external scientific advisors.

10. As far as possible, social protection programmes should be directed locally or nationally, not by external agencies.

[163] See Lines (2008), pp. 78-82.

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