

# Growth and poverty reduction: the role of agriculture



Cover photo: Man with corncobs, Fada, Burkina Faso. (© Ron Giling/Still Pictures)

---

# Growth and poverty reduction: the role of agriculture

A DFID policy paper

Published by the Department for International Development

December 2005



## Foreword

---



DFID has always recognised the importance of agriculture to reducing poverty. Some 2.5 billion people in developing countries depend on agriculture for their livelihoods. But beyond its direct benefit to rural livelihoods, the agricultural sector has particularly strong links to the rest of the economy, and this is one of the most powerful ways in which it generates overall growth and reduces overall poverty. When agriculture grows, overall economic growth reduces rural and urban poverty faster.

But we need to do more, and to further improve the quality of our work in order to provide real benefits to poor people. In many poor countries, agriculture has stagnated and failed to deliver its potential. The international community is increasingly recognising, for example in the work of the Commission for Africa and the UN's Millennium Project, that without more effective approaches to improve agriculture's performance we are unlikely to meet our commitment to halve the number of people living on less than US\$1 a day by 2015.

This paper shows why we believe agriculture is so important for economic growth and poverty reduction. It explains our approach to the sector and its important linkages with the wider economy. And it presents principles and priorities that will direct our efforts to unlock its potential.

Working within the framework of countries' own plans, the paper aims to help DFID think through policy and investment options, and to improve the effectiveness of coordinated development assistance to agriculture.

A handwritten signature in black ink, appearing to be 'H Benn'.

**Rt Hon Hilary Benn MP**  
**Secretary of State for International Development**



# Contents

---

	<b>Page</b>
<b>Foreword</b>	<b>iii</b>
<b>Executive summary</b>	<b>1</b>
<b>1. Agriculture and poverty reduction</b>	<b>5</b>
1.1 The historical perspective	5
1.2 Looking ahead	9
1.2.1 The physical challenges to increasing productivity	10
1.2.2 Harsher market conditions	11
1.2.3 Links between agriculture and wider growth	13
1.2.4 Changing policies	13
1.3 Agriculture is the key to poverty reduction	14
<b>2. Principles for agricultural strategies in poor countries</b>	<b>17</b>
2.1 Match the prevailing stage of development and the nature of poverty	17
2.2 Focus on places where significant productivity gains are possible and potential linkages to the wider economy are strongest	18
2.3 Prioritise strategies which address the most significant constraints to increased productivity and employment	19
2.4 Build on market opportunities	20
2.5 Ensure complementarity with social protection strategies	21
2.6 Ensure sustainability	23
<b>3. Priorities for agricultural strategies</b>	<b>27</b>
3.1 Creating a supportive policy and operational framework	27
3.2 Effectively targeting public spending	27
3.3 Tackling market failures	29
3.4 Filling the agricultural finance gap	31
3.5 Realising the benefits of technology	32
3.6 Improving access to resources and secure property rights	34
3.7 Reducing distortions in international markets	35
<b>4. Priorities for DFID</b>	<b>37</b>
<b>Annex 1</b>	
<b>Agriculture's contribution to GDP in selected countries where DFID works</b>	<b>42</b>
<b>References</b>	<b>43</b>



# Executive summary

---

## Agriculture at the heart of poverty reduction

Agriculture is a key part of DFID's efforts to reduce global poverty and achieve the Millennium Development Goals.<sup>1</sup> It extends into many other areas of development policy and complements our work on issues such as fisheries, forestry, food security, social protection, governance and trade.<sup>2</sup>

Building on our understanding of livelihoods (DFID, 2002), this paper shows why we believe agriculture should be placed at the heart of efforts to reduce poverty.<sup>3</sup> It proposes principles and priorities to guide our work, and to help decision-makers to weigh up the potential growth and poverty impact of agriculture compared with other competing demands on resources.

Our approach to agriculture is based on the premise that agriculture's importance to poverty reduction goes far beyond its direct impact on farmers' incomes. There is a mass of evidence that increasing agricultural productivity has benefited millions through higher incomes, more plentiful and cheaper food, and by generating patterns of development that are employment-intensive and benefit both rural and urban areas. More importantly, it has provided the spur to economic development outside agriculture where growth and job creation are faster and wages higher.

Making the transition to a more diversified and faster growing economy is the key to sustained poverty reduction for the world's poorest countries. But it is increasing agricultural productivity that has allowed poor countries to make the initial step on to the ladder leading to prosperity. This is particularly the case for labour-intensive, small-scale agriculture with its strong links to growth in other areas. No poor country has ever successfully reduced poverty through agriculture alone, but almost none have achieved it without first increasing agricultural productivity.

Reversing recent disappointing trends in agriculture's performance is critical if poor countries are to escape the trap of slow growth and poverty. This is particularly true in sub-Saharan Africa, where growth in agricultural output has barely kept pace with population. Productivity has stagnated, slowing wider economic growth and exacerbating poverty with it. In Asia, where so much of the green revolution took place, the rate of growth of agricultural productivity has begun to slow with serious consequences for further poverty reduction.

It will be a challenge to increase agricultural productivity in many of the world's poorest countries. Shortage of land and water, and factors such as globalisation, climate change, an inequitable global trading system, depressed commodity prices and HIV/AIDS create a difficult setting for agricultural development, particularly for small farmers. This has led to scepticism as to whether agriculture can still deliver growth and reduce poverty in today's challenging context.

<sup>1</sup> Our discussion of agriculture in this paper focuses on crops and livestock. Other areas of natural resource use, including fisheries and forestry, bring in a wider set of issues not dealt with in this paper.

<sup>2</sup> Papers on these and other associated issues can be found at <http://www.dfid.gov.uk/pubs/>

<sup>3</sup> See DFID (2004 a-m) for background documents that informed this paper.

## Growth and poverty reduction: the role of agriculture

---

Nevertheless, while a second green revolution on the scale of Asia's may not be possible today, evidence suggests that farmers in Africa and other priority areas can overcome these challenges and achieve significant improvements in productivity. A major change in agriculture's performance in the world's poorest countries is possible and must be achieved if millions of people are to escape poverty. Although the precise pathway to achieving this needs to be debated within individual countries, a number of principles are generally applicable.

### Guiding principles for agricultural development strategies

To maximise their impact on poverty, agricultural development strategies should aim to realise the links between increasing agricultural productivity and growth in the wider economy. Achieving this requires policy and public investment decisions in agriculture to be guided by six principles.

They should:

- *reflect the stage of a country's development.* Increasing agricultural productivity is most critical in the poorest countries in the earliest stages of development. In these countries, it is justifiable for the government to give a clear priority to agriculture when investing public money and play a proactive role in stimulating and facilitating agricultural development (particularly overcoming market failure) so that they get on to the pathway to more diversified and faster economic growth;
- *give priority to agricultural development in places where significant productivity gains are possible and the potential links to the wider economy are strongest;*
- *give priority to strategies designed to overcome the most significant obstacles to increased productivity and employment.* For many of the poorest countries this may mean focusing on small-scale, labour-intensive farming. Increasing employment opportunities for poor people will have a direct impact on poverty, but it also generates additional spending which supports growth outside agriculture;
- *focus on demand and market opportunities.* For large parts of Africa the domestic food market is the largest and most rapidly growing source of demand for agriculture. Elsewhere, where countries or regions are self-sufficient in basic goods, the focus will need to switch to higher value agricultural crops which have greater market potential;
- *make social protection complementary to agricultural growth.* Social protection programmes (such as cash benefits and welfare) are vital for ensuring a minimum level of well-being and social security for the chronically poor and vulnerable. Well-targeted and timed social protection programmes can support agricultural growth prospects and help people to be more comfortable with taking risks and to cope with unexpected events. New approaches to social protection, including targeted cash benefits that can assist agricultural growth by stimulating local markets; and

- *ensure the sustainable use of the main productive resources* such as land and water and minimise any adverse impact of increasing productivity on the environment.

## Making agricultural development happen

Building on these guiding principles, efforts to accelerate agricultural growth in poor countries should focus on seven priority areas:

- *create policies that support agriculture.* In many developing countries agriculture has been hurt by overvalued exchange rates, high export taxes and policies that have kept prices low to benefit consumers. Many countries have changed their policies to address these issues, but elsewhere progress on reducing their effect still needs to be made;
- *target public spending more effectively.* Strategic public investment in agriculture – particularly in roads, irrigation and agricultural research – is highly effective in increasing agricultural productivity and reducing poverty. But in many countries public spending in support of agriculture is inadequate and often poorly directed. Where appropriate, governments should give priority to spending that supports agriculture and direct it towards important infrastructure and services that support private investment and benefit all citizens, including the poor;
- *tackle market failure.* Poorly functioning markets continue to hinder agricultural development in many poor countries. State intervention, particularly in Africa, has a poor track record, but when markets have been liberalised, the private sector has often failed to fill the gap left when government withdraws. Building effective markets that are accessible to poor people needs actions to reduce the transaction costs and risks that inhibit the private sector. This involves improving infrastructure and communications, and removing burdensome regulations or inconsistent policies. Where markets are very weakly developed, governments may need to play a more direct role in encouraging private sector participation by using targeted and time-bound guarantees or subsidies;
- *fill the agricultural finance gap.* Limited access to finance, particularly short-term seasonal credit, remains a major obstacle to many poor farmers investing and innovating. Financial service providers are often reluctant to meet small farmers' credit needs and new approaches are needed to meet this demand;
- *spread the benefits of new technology.* Agricultural research must be effectively funded and research priorities must respond to demand and reflect agriculture's role in poverty reduction. Efforts are also needed to improve the availability to poor people of knowledge and technology through both public and private sector institutions, and to improve public access to the results of privately financed agricultural research;

## Growth and poverty reduction: the role of agriculture

---

- *improve access to land and secure property rights.* Ownership and access to land in many poor countries remain inequitable, reducing agriculture's contribution to poverty reduction. Efforts are needed to help poor people to buy land and to encourage large landowners to sell it. This may be done by simplifying legal and administrative procedures and strengthening the financial position of the poor. In addition to measures aimed at increasing poor farmers' land ownership, attention should be given to new approaches to land administration that can help provide secure access to land through, for example, leasing arrangements. Special attention should be given to improving access to land for the most marginalised people, particularly women and indigenous communities; and
- *reduce distortions in international agricultural markets.* Subsidies, tariffs and non-tariff barriers continue to distort patterns of international trade and to depress prices. Continued efforts are needed to ensure their reduction in line with World Trade Organisation commitments and to assist those countries facing short-term problems adjusting to international agricultural trade reform.

### Following through on our commitments

Improving development assistance to agriculture will require concerted and coordinated efforts from development agencies such as DFID, developing country governments, regional initiatives, civil society (such as churches and charities) and the private sector. Our international and country-based efforts will be guided by the principles outlined in this paper.

In specific countries, the priority of these actions will vary according to circumstances and be framed within countries' own strategies for reducing poverty and increasing growth. Actions to improve agriculture must also be part of a broader development approach to manage the different impacts that policy change and economic transition will have on different groups in society.

Measuring the impact of this new approach on our actions is important and we intend to take stock within three years of how we are performing against the commitments we are making.

## 1.1 The historical perspective

1. Agriculture's contribution to poverty reduction is sometimes thought to be small, because its relative economic importance usually falls when low-income countries successfully develop.<sup>4</sup> This view is misleading. Strong agricultural growth, particularly increased productivity, has been a feature of countries that have successfully reduced poverty<sup>5</sup> (see Box 1.1).

2. This was true for many parts of Asia, where what is now known as the green revolution played a major role in reducing poverty. This contrasts with much of Africa's recent experience, where per capita food production and yields have largely stagnated, slowing overall growth and increasing hunger and poverty (see Box 1.2).

### Box 1.1 Agricultural growth is good for the poor

**Evidence consistently shows that agricultural growth is highly effective in reducing poverty. Gallup et al (1997) reported that every 1% increase in per capita agricultural output led to a 1.61% increase in the incomes of the poorest 20% of the population. Thirtle et al (2001) concluded from a major cross-country analysis that, on average, every 1% increase in agricultural yields reduced the number of people living on less than US\$1 a day by 0.83%.**

<sup>4</sup> Our discussion of agriculture focuses here on crops and livestock. Other linked areas, including fisheries and forestry, bring in a wider set of issues not dealt with in this paper.

<sup>5</sup> Agricultural productivity is a measure of how efficiently resources are used in producing agricultural products. When productivity increases, there is an increase in the amount of output for any given amount of inputs used in its production. Productivity gains can be realised through increases in the efficiency with which labour, capital and land are used. In combination, these increases contribute "total factor productivity", a measure that takes into account all inputs used in production.

### Box 1.2 Africa and Asia: a contrasting picture of agricultural performance

Between 1961 and 2001, per capita production of cereals rose by over 50% in the developing world as a whole. But this overall picture masks great regional differences. In sub-Saharan Africa, output barely kept pace with population growth, increasing from 40 to 116 million tonnes. Most of this (probably 80%) came from expanding the area farmed: cereal yields increased by just 50%, from around 0.8 to 1.2 tonnes per hectare, and soil fertility has fallen dramatically. This contrasts sharply with Asia, where cereal output tripled from 309 to 962 million tonnes over the same period. This was far above the increase in population, and mostly came from higher yields, which rose from an average of 1.2 to 3.3 tonnes per hectare. The farmed area increased by just 40% over the same period.

Sources: International Food Policy Research Institute (IFPRI), 2002; FAOSTAT, 2004

3. Rapid increases in agricultural output, brought about by increasing land and labour productivity, have made food cheaper, benefiting both the urban and rural poor, who spend much of their income on food. Bangladesh provides an excellent example of this. Between 1980 and 2000, the real wholesale price of rice in Dhaka's markets fell from 20 to 11 Taka per kg, bringing major benefits to poor consumers (Smith and Haddad, 2002). Poor households typically spend 50–80% of their income on food (Nugent, 2000), including many poor farmers.
4. In addition, when the conditions are right, increasing agricultural productivity has increased the incomes of both small and large farmers and generated employment opportunities. These increases in income are particularly important because the proportion of people mainly dependent on agriculture for their income remains high: ranging from 45% in East and South East Asia, to 55.2% in South Asia and 63.5% in sub-Saharan Africa (FAOSTAT, 2004).
5. A large body of evidence shows that higher agricultural productivity in Asia consistently raised farmers' incomes despite declining market prices resulting from increased output. Small- and medium-sized farmers have not been excluded from these benefits (Lele and Agarwal, 1989; Lipton and Longhurst, 1989). A 1990s survey in India concluded that the average real income of small farmers rose by 90% (Dev, 1998).
6. Increased agricultural productivity has also created employment opportunities on farms, although this did not necessarily result in higher wages (Hazell and Ramasamy, 1991). Cross-country studies estimate that for every 1% increase in agricultural output, farm employment is increased by

between 0.3 and 0.6% (Mellor, 2001a). It is not just the landless that rely upon this source of income. Many farmers supplement their incomes by working on the farms of others.

7. But agriculture's historical importance to reducing poverty goes far beyond its impact on agriculture-based livelihoods. Where agriculture has grown rapidly, higher rural incomes and cheaper food have increased the demand for goods and services produced outside agriculture.

8. These strong linkages or "multipliers" between growth in agriculture and that in the wider economy have allowed poor countries to diversify their economies to sectors where growth is generally faster and labour productivity and wages are higher (see Box 1.6).<sup>6</sup> Where agricultural productivity has grown slowly, particularly in sub-Saharan Africa, non-farm activities have also tended to grow slowly and to offer low wages (Haggblade et al, 2002).

9. Building livelihoods outside agriculture is vital to poverty reduction. This is particularly important in rural areas, where 70% of the world's poorest people live (Ravallion, 2002) and the non-farm economy already plays a major part in people's livelihoods (see Box 1.3).

### Box 1.3 The importance of the rural non-farm economy

**Across the developing world, as much as 25% of the rural population working full-time is employed outside agriculture, and accounts for 35–40% of rural incomes (Haggblade et al, 2002). Case studies in the Indian states of Andhra Pradesh and Madhya Pradesh (Farrington et al, 2005) show that almost 40% of rural income in surveyed villages came from outside agriculture. This diversification is not confined to the rich – the poorest 20% of the population, on average, earn 30% of their income from non-farm sources. In parts of Africa, up to 42% of total rural income comes from non-farm sources (Barrett et al, 2000; Reardon, 1998) and this trend appears to be increasing rapidly (Bryceson, 1999b).**

10. The development of non-farm opportunities will be uneven between regions and over time. To escape poverty, people may have to leave their home areas, either for the season or permanently, and on occasion they may even return to agriculture if growth in the non-farm sector stalls (for example, in Indonesia during the financial crisis of the 1990s). People may also combine agriculture and non-farm work (Kydd et al, 2004).<sup>7</sup>

<sup>6</sup> These growth linkages were first recognised in the 1960s (Johnston and Mellor, 1961).

<sup>7</sup> Part-time farmers often have the advantage of links to urban areas and non-farm earnings to invest in their farms, which can make them very efficient. For example, in Tanzania, a 2001 survey of 310 households showed that agricultural productivity tends to increase as households diversify their incomes (Ellis and Mdoe, 2002).

## Growth and poverty reduction: the role of agriculture

---

11. Agriculture accounts for a significant proportion of GDP in the countries where DFID works (see Annex 1). Over time, the “structural transformation” of poor countries’ economies away from dependence on agriculture lies at the heart of sustained poverty reduction. This relationship is greatest when countries are least developed. At this early stage of development, agriculture typically accounts for a large share of total employment and food represents a major part of poor people’s spending. As the non-farm sector develops, and economies become progressively less dependent on agriculture, the relationship becomes less important overall, but remains significant in some parts of these economies where the non-farm sector is least developed.

12. The nature of productivity changes and the size of farms where these changes take place play an important part in determining the extent to which agricultural growth contributes to wider growth and reduces poverty.

13. Both labour and land productivity increases are central to pro-poor agricultural growth. Furthermore, the relationship between the two is critical and changes as an economy develops. In the early stages of growth, both land and labour productivity must rise in order to reduce poverty, but land productivity must rise faster. This condition is necessary to create additional employment on farms, which benefits the poor and in turn stimulates demand for non-farm goods and services. For innovation to benefit farmers, it must stimulate the demand for their produce by reducing food prices, but it must also reduce their costs of production by a greater amount.

14. In the later stages of growth, as more employment opportunities outside agriculture become available, labour is increasingly drawn away from agriculture and wage rates for farm labourers tend to rise. In order to maintain an affordable supply of food, it becomes progressively more important to increase labour productivity. Without this, increasing food prices could jeopardise ongoing economic transformation.

15. However, even in rapidly growing developing countries where pockets of persistent poverty remain, agriculture, particularly through farm employment, remains important. For this reason, the general slowdown in the rate of growth of agricultural productivity in Asia has had important implications for poverty reduction. Following the impressive early gains in the 1970s and 1980s, the rate of growth of cereal yields in India, in particular, has fallen, slowing overall job creation with it. Agriculture policies should change to reflect this.

16. Farm size is also important. In the early stages of growth, as the Asian green revolution showed, productivity increases on labour-intensive small farms have had the greatest impact on poverty reduction. Small farms have been able to achieve significant improvements in land productivity.

17. But no less importantly, small- to medium-sized farm households typically spend a relatively high proportion of any additional income on locally manufactured goods and services (Eastwood et al, 2005). This provides an important stimulus to overall demand that is less likely to be provided by growth in output achieved from larger, capital-intensive farms, or indeed other capital-intensive economic activities.

18. Structural transformation inevitably results in agriculture's share of total output and employment falling. However, there are very few examples of countries that have made this transition without first realising growth in agriculture.<sup>8</sup> Where agricultural growth has stagnated – as in large parts of Africa today – the transformation of economies has stalled and poor countries have remained trapped in a cycle of slow growth, low labour productivity and poverty.<sup>9</sup> This underlines the importance of improving agriculture's performance in many of the poorest countries.

## 1.2 Looking ahead

19. Half a century ago many commentators saw little realistic prospect of reducing poverty in Asia. The region seemed destined for a future of hunger and famine with agriculture offering little potential for growth. However, as history has shown, with a strong commitment to develop agriculture through support to the effective development of irrigation and the adoption of new technologies, agriculture played a major part in Asia's relative success in reducing poverty.

20. Agriculture's impact on growth and poverty reduction was greatest when the supply, demand and policy conditions favoured growth in labour-intensive, small-scale farming. Today, the situation in many developing countries, particularly in Africa, is less conducive to this happening.

21. Some of the factors that make increasing agricultural productivity difficult have always challenged agricultural development. Limited access to finance, inequitable access to productive resources, poorly functioning markets, poorly developed infrastructure and the risks associated with adverse weather and prices are ongoing challenges. Gender inequalities remain in access to productive resources, divisions of labour, producer incentives and control of profits (see Box 1.4). Poor labour standards hamper productivity and affect the rights of workers.<sup>10</sup> Progress depends on decision-makers that are willing and able to tackle difficult issues, and to prioritise and implement policies that benefit the poor. Political economy factors often mean that reforms are not put into place. The highly political agriculture sector is no exception.

<sup>8</sup> City states (like Singapore and Hong Kong) and unusually successful mineral economies (like Botswana) are among the only examples where prior agricultural growth has not been critical to economic diversification.

<sup>9</sup> Following a fairly rapid decline in the 1960s and 1970s as the non-farm economy grew, agriculture's contribution to overall GDP in sub-Saharan Africa has remained constant over the past 20 years (World Bank, 2003).

<sup>10</sup> The contribution of labour standards to poverty reduction is discussed in DFID (2004n).

### Box 1.4 Addressing the gender-based constraints to agricultural productivity

**Measures to address intra-household inequalities can enhance efficiency and maximise the poverty reduction impact of growth. For example, intra-household gender inequality represents a significant constraint on growth in rural sub-Saharan Africa. Production in Burkina Faso could be increased by 10-20% by a more gender-equal intra-household allocation of agricultural inputs (Klassen, 2005; Sabates-Wheeler, 2005). Given the importance of women as agricultural producers, initiatives aimed at increasing agricultural productivity need to reduce differential access to and control of resources by women and support women's effective participation in decision-making processes.**

22. There are also new issues that have emerged since the 1960s and 1970s, that threaten to constrain productivity gains and weaken the important links between agricultural growth and economic transformation that were so effective in Asia in the green revolution. These are examined in more detail below.

#### 1.2.1 The physical challenges to increasing productivity

23. Asia's success in rapidly increasing yields during the green revolution was based largely on irrigated farming systems. In contrast to rain-fed agriculture, irrigation provides a more predictable and responsive physical environment for new technologies, including fertilisers and new crop varieties. Irrigation also gives farmers the opportunity to realise more than one harvest a year (double cropping).

24. The potential for expanding irrigation in Africa is more limited than in Asia during its green revolution. Large-scale irrigation in Africa is likely to be expensive, probably more than three times the cost of comparable systems in South Asia (Rosegrant et al, 2001). While there is scope to bring these costs down and to expand smaller scale irrigation (for instance, treadle pumps), Africa will continue to rely heavily on rain-fed agricultural systems.

25. In many parts of the developing world, agricultural potential is directly jeopardised by the degradation of the natural resource base, including salinisation of land and unsustainable use of ground water.

26. Existing climatic variability is likely to be exacerbated by longer-term climate change. Although its impact is hard to quantify, climate change is likely to increase the unreliability of farming systems, particularly in rain-fed areas.

27. Despite rapid population growth, Africa's population density generally remains well below that of Asia even 40 years ago. This limits the size of local markets and increases the per capita cost of providing services. Agriculture is performing better in areas of Africa where population densities are high and that are well connected to markets.

28. Poor transport infrastructure limits market access for many farmers in the developing world. Road densities are critical to intensifying agriculture (Dorward and Kydd, 2003). However, in Africa, these are low with respect both to population numbers and to area, averaging just 63km per 1000 square km – about 40 times less than in India in 1973. It is estimated that 60% of Africa's rural population lives in areas with good agricultural potential but poor access to markets (Kelley and Byerlee, 2003). In a third of African countries, transportation costs account for more than 25% of the total value of exports, and in Uganda they exceed 70% (von Braun et al, 2002). Deficiencies in electricity supplies and telecommunications are widening this "infrastructure gap".

29. HIV/AIDS presents a challenge to all aspects of development. Although the evidence about its impact on agriculture is limited and often contradictory, HIV/AIDS is certainly: affecting the ability of governments to deliver services; affecting the availability of labour (which is a key asset of the poor); impeding the transfer of agricultural skills from one generation to the next; and diverting resources that could be used to boost productivity. Instead, affected families are focusing on surviving and meeting the costs of treatment and burial.

### 1.2.2 Harsher market conditions

30. Since the 1960s, world prices of most important agricultural commodities including food staples have steadily fallen and this trend is expected to continue (DFID, 2004i).<sup>11</sup> Between 1980 and 2003, the prices of agricultural raw materials and food and beverages fell by 60% and 73%, respectively (UNCTAD, 2003). In 2003, coffee and cotton prices were 17% and 33.5% of their 1980 real values. From 1997 to 2001 alone, the combined price index of all commodities fell by 53% in real terms (FAOSTAT, 2004).

31. The fall in prices has happened because demand for these commodities grows relatively slowly, while supply has increased rapidly as a result of new technologies and government subsidies given primarily, but not exclusively, to farmers in developed countries (see Box 1.5). While the prices of

<sup>11</sup> See FAO (2004) for further details on the state of agricultural commodity markets.

important inputs, including fertiliser, have also fallen in real terms, the decline in international agricultural prices has been even greater. There appear to be limited prospects for using international commodity agreements to improve prices by regulating the supply of products entering the market.<sup>12</sup>

32. Schemes such as FairTrade can play a vital role in giving farmers a greater share of market value. Commodity price risk management can also help to stabilise prices at farm level.<sup>13</sup> However, the solution to commodity dependency lies in economic diversification.<sup>14</sup> Achieving this requires investment in the non-agricultural sector that is most likely to occur in a stable economy. This indicates the importance of measures to smooth out the negative effects of volatile commodity prices on export earnings and tax revenues, through financing facilities such as the European Union's FLEX system or the International Monetary Fund's Compensatory Financing Facility.

### Box 1.5 The impact of farm subsidies in developed countries

**Across the Organisation for Economic Co-operation and Development (OECD) countries, governments provided farmers with around \$257 billion in support in 2003.**

**These payments make up more than 30% of farm revenue in rich countries and two-thirds of these payments are in the form of price support (Tangermann, 2003). The prices farmers receive in the OECD are 31% above the equivalent in international trade. In some instances, they are much higher: 80% for milk, nearly 100% for sugar and 360% for rice. This leads to increased production in OECD countries.**

**Developed countries then tend to dispose of their surplus farm production through export subsidies, which reduce international prices (Tangermann, 2003).**

**As a result, developing countries find it harder to export their produce and local farmers face unfair competition in their markets. While it's difficult to make accurate estimates, removing these subsidies could boost rural income in low- and middle-income countries by up to \$60 billion a year (Beghin et al, 2002).**

**Freer international agricultural trade will not benefit all developing countries. The benefits may well be captured by a relatively small number of efficient, largely middle-income producers. Furthermore, many developing countries will lose preferential access to some developed country markets for their products.**

<sup>12</sup> Further details on international trade and DFID's current work are outlined in DFID (2005a).

<sup>13</sup> See for example the work of the Commodity Risk Management Group in the World Bank, including Dana *et al* 2005.

<sup>14</sup> See DFID (2004a) for a discussion of these issues.

33. Poor farmers are also finding it harder to sell their produce as food processing, distribution and retailing becomes increasingly globalised (DFID, 2004). The appearance of large, international supermarket chains in many developing countries is leading to new demands on quality, quantity and delivery schedules. Supermarkets already dominate the retail food markets in most developed countries, and they are increasingly penetrating markets in developing countries. This trend has been greatest in Latin America, where supermarkets now account for 75% of all retail food sales. In Africa, supermarkets now account for around half of all food sales in South Africa, and 20% of urban food sales in Kenya (Neven and Reardon, 2004).

34. Increasingly stringent product standards are also being imposed for reasons of food safety or to protect domestic agriculture from imported animal or plant diseases. This is creating new hurdles for producers in many important export markets. In order to meet these standards, farming is becoming increasingly reliant on supervision and control by large buyers and their agents. This is making it harder for small farmers to access export markets (Barrientos and Kitzinger, 2003) but is less important in the burgeoning domestic markets.<sup>15</sup>

### 1.2.3 Links between agriculture and wider growth

35. The strong links between increasing rural incomes and growth in the wider economy were central to the success of the green revolution in accelerating economic growth. These links worked well in large Asian countries, where increased rural incomes were largely spent on locally produced goods and services.

36. Some commentators (Ellis, 2000b) question whether these linkages remain as strong today, particularly in Africa. They argue that, in many situations, additional income is increasingly likely to be spent on imported consumer goods and agricultural inputs rather than locally produced goods. This, they believe, limits the impact of agricultural growth on the rest of the economy, but as we discuss in paragraph 47, the evidence does not support this. In any case, this would apply to any source of growth, agricultural or not.

### 1.2.4 Changing policies

37. In contrast to the 1960s and 1970s, development strategies now primarily focus on market-led approaches. This has been influenced by a revised view of the market and service delivery role of the state, the need for fiscal discipline, the weak performance of earlier public spending in many poor

<sup>15</sup> These challenges can be successfully overcome. For example, Flamingo Holdings, which employs 10,000 smallholders in Kenya, operates contractual arrangements under which no more than 25% of acreage per smallholding is given over to producing a cash crop. There is also a pre-purchase agreement for the crop coming off that smallholding.

## Growth and poverty reduction: the role of agriculture

---

countries, and perceptions that focusing public expenditure on health and education will bring greater benefits.

38. The withdrawal of the state from direct provision of agricultural marketing and services has been a key element of these reforms. In many countries, particularly in Africa, this has contributed to a more challenging context for agricultural growth, as the private sector has not always responded as expected. The past failure of many state organisations is undeniable, but in many instances the private sector is not providing a viable alternative.

39. Export-based agriculture has often been helped by marketing reforms and improved macro-economic conditions (reduced exchange rate overvaluations, lower budget deficits and controlled inflation). In Ghana, devaluation and a reduction in export taxes on cocoa had a positive impact on production. In Burkina Faso, market reforms and devaluation played a significant part in the 250% expansion of cotton production that occurred between 1994 and 2003.<sup>16</sup>

40. The experience with food crop production is more mixed. Evidence from sub-Saharan Africa overwhelmingly indicates that while liberalisation may have led to higher average prices, this has not been enough to boost production given factors such as high transport costs and reduced access to key services and inputs. In general, the impact on crop yields has been marginal at best (Kherallah et al, 2000). Liberalised markets have also tended to demonstrate greater price volatility.

41. In many countries, public expenditure on agriculture has fallen, often to the point where even basic functions, including regulatory and legal systems and infrastructure, are no longer provided. For example, in Uganda between 1982 and 1997, government spending on agriculture fell from 7.4% to 1.5% of total public expenditure (Fan et al, 2004). Important support functions, such as extension and veterinary services, have also contracted.

### 1.3 Agriculture is the key to poverty reduction

42. Given the scale and extent of these challenges, some sceptics suggest that agriculture's role as a key source of growth and poverty reduction is limited (Maxwell, 2004), but other commentators strongly refute this (Hazell, 2005). While conditions for smaller and poorer farmers are undoubtedly challenging, the more optimistic (Lipton, 2004, and Hazell, 2005) believe that productivity gains are possible with the right policies and will have a major impact on growth and poverty.

43. Accelerating agricultural growth where it is most needed will undoubtedly be harder than in the past. But with political will, substantial investment and well formulated and implemented policies, growth is possible. The links between agriculture and economic transformation remain strong.

<sup>16</sup> However, this success was still heavily dependent on state-led coordination of input, finance and output marketing systems.

44. Market prospects may be better than many believe. While there is little hope of reversing the long-term decline in global agricultural prices, increasing demand in India and China – particularly for grain used in feeding livestock – offers some prospect of international prices stabilising (Song, 2004).
45. Domestic and regional markets offer significant growth potential. Africa's domestic consumption of food staples alone is estimated at around \$50 billion a year, more than five times greater than the value of its traditional commodity exports. Food consumption is expected to double by 2020, (Diao and Hazell, 2004). Staples include cereals, roots and tubers and traditional livestock products that are produced and consumed mainly by the poor.
46. As Africa currently imports 25% of its food, the potential for substitution also exists. Although international grain prices are at historically low levels, the high cost of transporting food internally means that locally produced grain is still able to retain a market share. But high transport and marketing costs also limit access to wider domestic markets for domestic farmers. So on balance, making strategic investments to reduce these costs should help build local markets and make local farmers more competitive.
47. The links between increasing agricultural growth and the wider economy also appear to be strong (see Box 1.6). Growth outside agriculture also helps to stimulate the agricultural sector, particularly increasing urban demand for higher-value products.

### Box 1.6 The importance of agriculture's growth linkages

Many studies have shown the strength of the growth linkages or "multipliers" between agriculture and the wider economy. Estimates show that on average in Asia, every \$1 of additional farm income created a further \$0.80 in non-farm income (Bell et al 1982; Hazell and Ramaswamy, 1991).

Estimates from Africa show that every additional \$1 of farm income leads to a further income of between \$0.96 in Niger and \$1.88 in Burkina Faso elsewhere in the economy (Delgado et al, 1998). Models of the Kenyan economy show these "multipliers" from agricultural growth are three times as large as those for non-agricultural growth (Block and Timmer, 1994). In Zambia, estimates suggest that every \$1 of additional farm income creates a further \$1.50 of income outside agriculture (Hazell and Hojjati, 1995).

## Growth and poverty reduction: the role of agriculture

---

48. For today's poorest countries, other sources of growth may exist, but few can match agriculture in its ability to reduce poverty and stimulate wider economic growth. For example, mineral wealth has not provided a platform for broad-based poverty reduction and economic growth, as countries like Nigeria and Zambia have shown. Without the increasing incomes and affordable food that a dynamic agricultural sector provides, economic transformation will be slow and economies will remain trapped in a cycle of low growth and poverty.

49. The issue is not one of agriculture growth being superior to that from other sectors, but of it being an essential complement to it, particularly in the early stages of development.

50. The pace of agricultural growth in today's poor countries will probably be slower than in the green revolution and it will differ between countries, reflecting local conditions. The participation of small-scale farmers will also be more difficult. But agriculture's potential can be realised and is critical to poverty reduction. Achieving this will require more effective investment and better policies, as is considered next.

51. In order to realise agriculture's full potential to support wider growth and reduce poverty, poor countries' agricultural development strategies will need to:

- i. match the prevailing stage of development and the nature of poverty;
- ii. focus on places where significant productivity gains are possible and the potential linkages to the wider economy are strongest;
- iii. address the most significant constraints to increased productivity and employment;
- iv. build on market opportunities;
- v. ensure complementarity with social protection strategies; and
- vi. ensure sustainability.

## **2.1 Match the prevailing stage of development and the nature of poverty**

52. Agricultural development strategies must reflect the fact that agriculture's role in economic growth and poverty reduction changes as countries develop. The constraints limiting agricultural growth also change as economies develop. This principle has important implications for policy, specifically the role of the state.

53. For the poorest countries in the earliest stages of development, accelerating growth in labour-intensive agriculture is fundamental to reducing poverty and allowing countries to achieve economic transformation. However, at this stage of development, the private sector is often small and weak, and markets for both inputs and products do not function efficiently.

54. If these market failures are not addressed, then investment and innovation, both by farmers themselves and by those providing key services such as seeds, fertiliser, storage, transport and credit, will remain low. This in turn will hold back agricultural growth, slowing the pace of economic transformation and poverty reduction.

55. These arguments make a strong case for the state to play an active role in building and supporting markets. In many successful Asian economies, the state played this role. The state engaged in markets and invested heavily in infrastructure and services in order to get agriculture growing as a means to enabling wider growth and poverty reduction (see Section 3.2). As countries develop, and the private sector matures, the rationale for the state to perform this function diminishes (Dorward et al, 2004).

56. Agricultural strategies will also need to change over time in order to reflect the dynamic nature of economic development and poverty. In countries where economic growth is good, some sub-regions may lag behind, and agriculture will continue to play an important role for people in these areas.

### **2.2 Focus on places where significant productivity gains are possible and potential linkages to the wider economy are strongest**

57. As the green revolution demonstrated, growth in agriculture had the greatest impact on poverty when it occurred in areas of higher yield potential. However, this was not simply a function of physical potential. These areas were generally more densely populated than elsewhere and had benefited from investments in infrastructure.<sup>17</sup> Consequently, increasing agricultural productivity directly benefited a large number of poor people and their increased spending contributed to non-farm growth.

58. The principle of focusing on areas that combine yield and linkage potential remains valid for countries in the early stages of development, including most of Africa.

59. Where poor countries are in a more advanced stage of development, for example India and China, this rationale may need to be reconsidered. Many established high-productivity regions in these countries have already benefited from extensive public expenditure to support agricultural development. Productivity growth in many of these regions is now showing signs of stagnation. For example, in the Punjab, the centre of the Indian green revolution, growth in crop yields nearly stagnated in the 1990s (Sidhu, 2002). Here public investment in agriculture needs to be refocused and greater attention given to development of the non-farm economy and higher-value agricultural products and processes.

60. Evidence is also emerging that, with the right kind of investment, particularly in relation to agricultural research and irrigation, greater productivity increases are possible in less favoured regions than in already developed regions in countries like India and China (Fan and Hazell, 2002).<sup>18</sup>

61. Fundamentally, however, the logic remains unchanged: the greatest impact on poverty will come from investing in agriculture where significant improvements in productivity are possible, and where these improvements will in turn stimulate wider economic growth through linkages to the

<sup>17</sup> DFID (2005b) presents the important linkages between agriculture and infrastructure.

<sup>18</sup> Many "lagging" regions in these countries have been less favourably treated by governments because of political or ethnic divisions. This problem has been exacerbated because agricultural research has also tended to focus on previously successful regions.

wider economy. Directing limited public resources towards agricultural development where yield increases are less likely or linkages to the wider economy are weak may not be as effective in reducing overall poverty.

62. Policy-makers should appreciate that agricultural growth will not directly benefit every person or region equally, but a rapid rise in inequality may slow the pace of poverty reduction (Ravallion and Chen 2004). Actions to improve agriculture must be part of a broader policy package that recognises the links between growth, inequality and poverty and the different impacts that policy change and economic transition will have on different groups in society.<sup>19</sup>

### **2.3 Prioritise strategies which address the most significant constraints to increased productivity and employment**

63. The structure of production, including farm size, asset holdings and the degree of labour intensity, also matters for growth and poverty reduction. People have been debating the relative advantages of small and large farms and their contribution to growth and poverty reduction for many years. Evidence shows that the optimal mix of farm size for growth varies according to a country's stage of development.<sup>20</sup>

64. A strong rationale exists for focusing resources on small farms in countries in the early stages of growth where labour is more abundant than capital, and small farms account for a large share of employment. Small farms are no less technically efficient than their larger counterparts (Heltberg, 1998) and increasing their productivity will have a major impact on poverty and growth. For poorer small-scale farmers this will be enabled through the market and through targeted public good expenditures; for better-off small-scale farmers this will be enabled through policy interventions through the market and better access to innovations. However, as countries develop, the advantages of "smallness", including the efficient use of unskilled labour, are gradually outweighed by the advantages of "largeness", such as being able to access financial information and information about input and output markets. This distinction is particularly true in sub-Saharan Africa. The small-farm sector dominates, labour is more abundant than capital and the links between agriculture and the wider economy are strong.

65. But there are some caveats. "External" factors constrain the ability of some small-scale farmers to increase their productivity. These include rapidly changing market conditions, a limited resource base, and repeated subdivision of already small farms.<sup>21</sup> "Internal" constraints include the

<sup>19</sup> DFID (2005c) discusses the links between growth, inequality and poverty. DFID (2005d) outlines our commitment to increase the participation of excluded group in processes of economic growth on equal terms.

<sup>20</sup> See Eastwood et al (2005) for a discussion on this.

<sup>21</sup> In Malawi's Mchinji district, average land holding per household has fallen from 3 hectares in the mid 1960s to 1.5 hectares in 1998 (Cross, 2002).

tendency for women to become trapped in low-productivity, household-based production and processing. There is also scope for commercial agriculture to play a significant role in reducing poverty. This is particularly true when it utilises opportunities that generate significant employment, or where large companies source from small producers, including outgrower schemes, allowing them to access markets they would otherwise be unable to reach. The rapidly growing export horticulture business is often a good example of this.

### 2.4 Build on market opportunities

66. If productivity is to improve, farmers will have to invest, innovate and take risks. But they will only be prepared to do this if they can see that the market for their produce is growing.

67. Exports of primary commodities including tea, coffee and cocoa have been and remain an important source of growth for many developing countries. They provide more than half of sub-Saharan Africa's export earnings. However, the prospects for significant growth based on expanding exports of these products are limited by poor price prospects.

68. Even if the volume of these exports was to increase significantly, the impact on growth and poverty would be limited because of the weak links between expanding output of these commodities and overall growth.<sup>22</sup> Diao and Hazell (2004) estimate that if Africa's traditional commodity exports regained their historic market share, agricultural income would only grow by an additional 0.3 to 0.4%.

69. Newer exports, including high-value horticultural, fish and livestock products, offer more potential for growth. European imports of leguminous vegetables increased by 130% between 1989 and 1997, with 75% of this increase coming from sub-Saharan Africa. Some countries have been particularly successful. Kenya's exports of fruit and vegetable products has multiplied by 500% since 1974 (Diao and Hazell, 2004).

70. While these markets have shown rapid growth, they remain relatively small and could easily become saturated. Small- and medium-scale farmers will also have to meet the costs of increasingly stringent product standards, including those set by importing governments and retailers, if they are to access these markets (Reardon and Berdegúe, 2002).

71. Export markets are only part of the story. Traditional commodity exports from sub-Saharan Africa are estimated at \$8.6 billion and newer "non-traditional" exports at \$6.1 billion (Diao and Hazell, 2004), whereas the domestic market, including rapidly growing urban markets for higher-value horticultural and livestock products, is estimated to be more than three times greater than these combined (see paragraph 45).

<sup>22</sup> Cotton in Africa is an exception.

72. Although the nature of domestic markets will vary across countries, these are frequently easier for poor people to access. In poor, densely populated countries such as Malawi and Ethiopia, where potential demand generally exceeds supply, demand prospects are good. As long as the rate of consumption grows faster than the rate of production, significant increases in productivity should not reduce prices to unprofitable levels.

73. The situation is different where the supply and demand for food are generally balanced, for example in Uganda. Here, creating a dynamic and profitable agricultural sector requires diversification into higher-value products, where demand prospects are more promising. But even in these situations, low-cost food staples need to be available, partly so that people can afford to buy the higher-value products, but also to meet the feed needs of a growing livestock sector. Risk-averse farmers will also be more willing to diversify into cash crops once they are certain about their own food security.

74. Building effective regional markets for food staples is particularly important in Africa. The movement of produce from surplus to deficit countries and regions can help smooth out price volatility, benefiting both producers and consumers. This will require improvements in regional infrastructure and the removal of regulatory impediments, both official and unofficial.

75. To realise market potential, producers will also need to be better linked to markets through targeted investment in infrastructure aimed at reducing transport and marketing costs. Transport charges in Ghana and Zimbabwe are up to three times more than for comparable journeys in Asia (Ellis and Hine, 1998). These transport costs contribute substantially to the large differences in market prices across Africa.

76. Efforts will also be needed to reduce the impact on farmers and consumers of year-to-year price volatility, typical of the markets of many poor countries. Even countries with chronic food shortages periodically have “good years” when they produce a surplus that cannot be stored or exported. Annual output fluctuations in Malawi and Zambia, for example, result in price fluctuations of more than 50% from one year to the next (Dana et al, 2005). In the longer term, trading between regions and between countries, and using better storage facilities should resolve this problem. In the immediate term, governments may need to act to protect farmers from the damaging impact of volatile prices in thin markets.

## **2.5 Ensure complementarity with social protection strategies**

77. There are important potential synergies between social protection and agricultural growth, but weak policy linkages mean that these have not always been realised (DFID, 2004f). Better policy coordination can ensure that social protection benefits agricultural growth.

## Growth and poverty reduction: the role of agriculture

78. Social protection ensures a minimum level of well-being and social security for people living in chronic poverty. Many people in this group – in which women, children, older people, people with disabilities and those affected by long-term illness (including HIV/AIDS) are over-represented – are unable to participate in agriculture.<sup>23</sup>

79. Well-designed social protection can benefit agricultural growth more directly by helping poor farmers to deal with risk. If farmers are assured of a safety net to provide support in case of shocks, they are more likely to invest in new innovations and productivity-enhancing investments. For example, the Maharashtra state employment guarantee scheme in India allows farmers to protect their assets in the event of a shock, and has encouraged investment in higher-yielding crop varieties.<sup>24</sup>

80. Social protection is also an investment in future growth. It can help families to break cycles of inter-generational poverty by investing in the health and education of their children, who subsequently have a better chance to engage in productive activities like agriculture.

81. Careful choice of policies and instruments is needed to ensure that social protection is complementary to growth. For example, the damaging effect of long-term food aid and subsidised food prices on local agricultural markets is well-documented (Maxwell, 1991).<sup>25</sup> Provision of free agricultural inputs is also problematic and must be evaluated against alternatives. For example, in Malawi, “targeted input schemes” that provide small packs of free seeds and fertiliser have increased the access of many poor households to food but may also be distorting markets for inputs and adding to the volatility of maize production and prices (Levy et al, 2004). This in turn may be reducing the incentives of others to invest, with significant negative implications for wider growth and poverty reduction.<sup>26</sup>

82. Better forms of social protection address inequalities that distort markets and make them inefficient. Pilot programmes of regular and predictable cash transfers have yielded initially promising results. A small cash transfer scheme in Kalomo district, Zambia, indicates that 30% of transfers are invested in productive agriculture. Cash grant distribution in Somalia, ongoing cash relief in Ethiopia, and cash for work in Afghanistan (Harvey, 2005) are other examples of schemes that can help stimulate local demand in rural areas.<sup>27</sup>

<sup>23</sup> Of the 1.2 billion people in the developing world that live on less than US\$1 a day, between 300 and 420 million people are estimated to be “chronically poor”. The greatest number of these live in South Asia (135–190 million), but the highest incidence is in sub-Saharan Africa, where some 14–18% of the total population is estimated to be chronically poor (Chronic Poverty Research Centre, 2004).

<sup>24</sup> DFID (2005e).

<sup>25</sup> To lessen these impacts, supplies for food distribution programmes (such as in school feeding schemes), should be bought locally, to help build local markets. The European Union has recently adopted this approach in Ethiopia.

<sup>26</sup> This suggests that, while households often use agriculture as an informal safety net, development interventions that target agriculture as a safety net may be less successful than strategies to harness agriculture for growth.

<sup>27</sup> Cash systems may, however, also create distortions. Unless markets are working well, they could increase local prices.

83. Achieving complementarity between agriculture and food security policies is also important (DFID, 2004g). Hunger is caused by poverty and achieving food security requires measures to improve access to food, not just increasing the supply of food (DFID, 2003a). Food security is not the same thing as national food self-sufficiency: 80% of the world's malnourished children live in countries that are self-sufficient in food (World Bank, 2004). Nor will it be achieved by focusing exclusively on increasing food production at the household level. Poor people need to have the means to access food. Broad-based agriculture has a critical role to play in this by raising the incomes of poor people and reducing the price of food.

## 2.6 Ensure sustainability

84. Sustainability is not an optional issue, it is fundamental to achieving future growth in agriculture (DFID, 2004k). Agriculture is sustainable when it balances ecological, economic and socio-political trade-offs, both today and in the future (DFID, 2003b). Sustainable agriculture is about more than organic or low-input farming. It must also take into account the contribution of agriculture to growth and poverty reduction and the needs of consumers.

85. After 10,000 years of agriculture, a combination of innovation and supportive policies has doubled global cereal output. Between 1961 and 2001, cereal output increased from 900 to 2,100 million tonnes and average per capita yields increased by 28% across the developing world, although there were significant regional variations (Rosegrant et al, 2001; UN Food and Agriculture Organisation (FAO), 2000). In East Asia and South Asia per capita food production has increased by 45% and 16%, respectively, between 1970 and 1997. In Africa, it has increased by just 4% and in the 1990s per capita production declined (FAOSTAT, 2004).

86. This increase in productivity has come at a price (see Box 2.1). Agriculture has expanded into areas where the land cannot support it. Even in areas with good-quality soils, intensive farming has frequently been badly managed due to poor policies and incentives and the inappropriate use of technologies (Hazell and Lutz, 1998). In some situations this is already beginning to compromise agricultural performance.

### Box 2.1 The resource costs of increasing agricultural production

#### *Reduction in available land*

Over the past 40 years, the amount of land available for agricultural use has declined from 1.5 to 0.8 hectares per capita. Around 1.5 billion hectares of land is farmed, but 38% is already degraded. Each year, a further 5–12 million hectares are lost in developing countries (Scherr and Yadev, 2001). A further 20–30 million hectares of irrigated land are severely affected by salinity due to poorly managed irrigation (Rosegrant et al, 2001).

#### *Increasing water shortages*

Twenty per cent of the world's cropland is irrigated, producing 40% of our food. In South Asia, over 80% of available water resources are now used in agriculture, and these resources are often used very inefficiently. Agricultural policies often provide a "perverse incentive" to badly manage irrigation, with the rich benefiting while the poor are denied access to water. For example, in parts of south India, the water table has fallen at a rate of two metres a year since the early 1990s, as richer farmers pump water from ever-deeper levels, well beyond the reach of the poor (Kumar, 2002). This level of extraction has additional impacts on the inefficiency of energy use.

#### *Decreasing diversity in crops*

Only 150 plant species are cultivated for food worldwide and three (rice, wheat and maize) supply 60% of the world's calories. Fifty years ago, over 30,000 varieties of rice were grown in India. Today, just 10 varieties account for 75% of all rice grown (DFID, 2004k). This declining diversity in crop varieties increases the risk of disease and pest problems.

87. In 2025, the UN expects that the global population will be in the region of 8 billion people (UN, 1996). Feeding a population of this size will require world cereal production to increase from 2 billion to 3 billion tonnes (Dyson, 1999). Despite some cautionary voices (for example Brown and Kane, 1994; McCalla, 1994), the majority view is that this increase in production can be achieved through a concerted effort to increase productivity. However, some regions will fare badly within this overall picture (see Box 2.2).<sup>28</sup>

<sup>28</sup> The International Food Policy Research Institute presents a range of possible scenarios (Rosegrant et al., 2001).

## Box 2.2 Global food demand and supply – projections to 2025

The global demand for cereal is projected to increase from 2.2 billion to 3 billion tonnes by 2025. This will largely be due to an increase in population. But a growing demand for grain-fed meat, dairy and poultry products in many rapidly growing middle-income countries will also be a major contributing factor. Global production of cereals for animal feed increased by nearly 80% between 1967 and 1997, and accounted for 36% of all cereal consumption in 1997. This trend seems set to continue.

Forecasts suggest that farmers will be able to produce 3 billion tonnes of cereal despite additional pressures from climate change. That's because farmers will be able to improve the productivity of their farmland by applying existing technologies and agricultural knowledge with a much smaller proportion of any increase in production coming through land expansion. However, future harvests will almost certainly be more variable, regional differences between supply and demand will grow and hunger will persist in many countries, particularly in sub-Saharan Africa.

Sources: Rosegrant et al, 2001; Parry et al, 1999; Dyson, 1999; de Haen et al, 2003.

88. Meeting demand on this scale will almost certainly require agriculture to be intensified through a significant increase in the use of synthetic fertiliser and irrigation (Dyson, 1999). Nevertheless, effective soil and water management practices tend to increase the effectiveness of well-managed fertiliser application and maintain more sustainable systems.

89. Farming systems that use fewer external inputs (such as chemical fertiliser, pesticides and irrigation water) have shown potential to meet local needs and aspirations while minimising demand on resources (Bunch, 2002; Franzel et al, 2002; Versteeg et al, 1998; Winarto, 2004). But local successes have rarely been replicated on a large scale and, by themselves, low external input systems are unlikely to drive productivity gains at the scale required to meet market demand and tackle poverty on a world scale (Pretty, 2000).<sup>29</sup>

90. In the absence of adequate soil and water management, the intensification of agriculture will lead to trade-offs with other aspects of sustainability. But a stagnant agriculture that uses available resources unproductively and inefficiently can also be unsustainable. Minimising the negative aspects

<sup>29</sup> This conclusion was based on DFID-funded analysis of more than 200 projects in over 50 countries. This included high-value organic products, which do not benefit small farmers.

## Growth and poverty reduction: the role of agriculture

of intensification will require a blend of policies that creates incentives for farmers to discourage unsustainable practices, such as the over-extraction of ground water. Technologies that incorporate traditional and new knowledge are needed.

91. Climate change represents a new challenge. Agricultural systems and research have achieved some local successes with enhancing productivity under variable climate (for example Rao and Okwach, 2005), but more action will be needed to adapt crops to the impacts of future climate changes (see Box 2.3). At the same time, agriculture contributes to climate change, with current agricultural practices accounting for an estimated 30% of the global greenhouse gas emissions caused by human activity (IPCC, 2001).

### Box 2.3 The impact of climate change

**The extent and implications of climate change remain uncertain, but models indicate that if temperatures increase towards the higher end of the predicted range, crop yields could fall by up to 20% over the next 50 years. In addition, any increase in the incidence of extreme weather events, such as drought, will have a major impact on vulnerable households that already have trouble coping with existing levels of climatic changeability. The impacts will be most severe where production systems are rain-fed and most vulnerable to drought.**

**Sources: International Panel on Climate Change, 2001; Bruinsma, 2003.**

92. Building on the principles outlined above, agriculture development strategies should focus on seven priority areas.

## **3.1 Creating a supportive policy and operational framework**

93. A stable economy with policies that encourage farmers to make sound choices about the allocation of resources is important to realising agriculture's potential. In many developing countries, agriculture has been hurt by overvalued exchange rates, a disproportionately high burden of taxation, and policies that kept prices low.

94. A growing agricultural sector needs to be supported by a number of basic public functions, including an effective legal and regulatory system. It also needs effective research and information (extension) services that meet the demands of users. In many developing countries these functions are often missing or operating sporadically and with limited coverage.

## **3.2 Effectively targeting public spending**

95. Creating a supportive environment means getting the right volume and pattern of public expenditure. Past evidence shows that strategic public spending in agriculture can be highly effective in increasing agricultural productivity and reducing poverty. Work undertaken by IFPRI shows the critical impact public spending (including that on specific subsidies) has made on accelerating agricultural growth and on reducing poverty. It also reveals the important ways in which the impact of different types of public spending on agricultural growth and poverty changes over time (Fan and Hazell, 2001a,b). India provides a particularly striking example of these important changes (see Box 3.1).

### Box 3.1 The changing impact of public spending on agriculture – the case of India

In the early stages of India's green revolution, government spending on agriculture generated returns larger than their costs. Investment in roads, education, irrigation infrastructure and agricultural research were especially important. Every rupee invested in road construction in the 1960s yielded almost nine times that amount in increased agricultural output with comparable benefit to cost ratios for education of 5.97, irrigation investment of 2.65 and agricultural research of 3.12. Spending on fertiliser, irrigation and credit subsidies also generated positive returns during this early period of growth with respective benefit to cost ratios of 2.41, 2.24 and 3.86.

As the Indian economy has grown, the returns to public investment in agriculture have generally fallen, although investment in roads (3.17), education (1.53) and particularly agricultural research (6.93) still generate positive benefit to cost ratios even into the 1990s. In contrast, spending on subsidies by the 1990s had become uneconomic, resulting in increased output worth less than the cost of their provision (Fan and Hazell, 2001a,b).

96. Public spending should be carefully targeted and effectively coordinated between ministries. Priority should be given to spending on public goods that support private investment, and that maximises the impact on productivity growth and benefits the poor. In many developing countries and particularly in Africa, public investment in support of agriculture is at low levels and is poorly focused. Areas with high and proven returns, like agricultural research, are often starved of funds, crowded out by spending on politically popular items like fertiliser subsidies. Public expenditure reviews that identify growth priorities can play a key role in redirecting public spending to where its impact on poverty will be greatest.

97. Government expenditures in support of agriculture must also evolve as countries develop. For example, while subsidised irrigation was critical to India's green revolution, its continued subsidisation now largely benefits richer farmers.<sup>30</sup> This is not only inequitable but also encourages inefficient investment decisions and is leading to the unsustainable use of scarce water. Reforming these subsidies is, as in the developed world, often politically difficult.

<sup>30</sup> In Zambia, the government spends 0.7% of GDP on fertiliser subsidies, 70% of which is used by the country's commercial farmers who could afford to pay full market prices (World Bank, 2001a).

### 3.3 Tackling market failures

98. Poorly functioning markets for inputs and products have been a major challenge to agricultural development. Some Asian governments successfully addressed this market failure by assuming a central role in markets themselves, albeit at substantial public cost and often inefficiently. Attempts to replicate these systems in Africa in the 1970s and 1980s largely failed. State-owned agencies proved unable to provide reliable services and inputs to needy farmers, despite the huge investments involved.

99. Recent attempts by many African countries to liberalise markets have been disappointing. Opinions on why this is the case are divided. For some, it is a result of incomplete or inconsistently implemented liberalisation: markets will only effectively work when they are fully and consistently liberalised (Jayne et al, 2002). For others, it reflects the reality of a small and poorly developed private sector that is unable to deliver what is expected of it (Dorward et al, 2004).<sup>31</sup>

100. Either way, getting markets working is probably the most important challenge for the poorest countries if they are to revitalise their agricultural sectors. Efforts should focus on creating effective markets through encouraging private sector participation by:

- improving physical access to markets through investments in infrastructure, using different combinations of public and private funds;
- improving access to market information, using established means such as radio and new information technologies such as mobile phones;
- improving the access of traders and producers to finance and insurance markets, for example by setting up systems to lessen price risk;
- supporting the development of approaches and policies to reduce the volatility of prices in important product markets. This could include support to develop commercially based storage such as warehouse receipt systems to help smooth out price variations (Coulter and Onumah, 2002);
- helping to link small producers to established markets as is happening through commodity associations in Southern Africa;
- removing restrictions and controls on the sale and purchase of agricultural products; and
- putting in place effective standards for quantifying and grading products, and gearing these standards to the needs of small farmers.

<sup>31</sup> For a discussion of these issues see DFID (2004b).

## Growth and poverty reduction: the role of agriculture

---

101. For countries in the earliest stages of development the critical importance of overcoming market failure may provide some justification for the state to play a more direct role in building and creating markets. These actions demand levels of state capacity and effective governance that have in the past been lacking. This is possibly the most contentious area in the agricultural policy debate – but one that must be tackled.

102. Possible measures include the provision of guarantees or subsidies by the state to traders and suppliers aimed at overcoming perceptions of risk or the high costs of working in small and weakly developed markets. These can be implemented in relatively market-friendly ways, for instance through vouchers for subsidies or partial guarantees to encourage banks to take risks. However, these must be seen as temporary measures focused on removing the barriers to the private sector's participation in markets. The indiscriminate or prolonged use of subsidies may add to rather than address the underlying problem. Subsidies should not be used as a means to provide a market for all farmers, or to support farmers' incomes. This is unlikely to be affordable and often benefits larger, more successful farmers.

103. Government and markets should be seen as complements rather than substitutes, with the role of the government being to create markets where they are missing, and to introduce the regulations necessary to make markets function properly (Stiglitz, 1998).

104. Even if markets operate efficiently for some people, formal and informal barriers – such as gender bias in government and market institutions – often exclude others from participating in and benefiting from them. Exclusion can limit people's access to services and assets and is inefficient for growth. Exclusion often manifests itself in "segmented" or "interlocked" markets.

105. In a segmented market, different terms are offered to different groups of people for the same product or service. For example, men and women may be paid differently for identical work, and access to land and other resources may be dictated by ethnicity or caste rather than any economic rationale.

106. Markets become interlocked when individuals or households can only gain access to a good or service through a particular individual, known as a "patron", who also controls their access to other goods and services. In sharecropping, the landowner often sells the tenant inputs and buys the final product in addition to controlling the access to land. Sometimes, interlocking might be the only way that people can access goods and services, and manage the risk of crop failure (Dorward et al, 2001). It becomes a problem when patrons abuse their power over their clients' choices and exploit them.

107. If segmentation and interlocking reduce farmers' incentives to innovate, invest or take risks, they can have negative effects on growth. Although it is difficult to address exclusion directly, responses that strengthen people's bargaining positions in markets include:

- civil society, producer-based organisations that truly represent the interests of their members (see Box 3.2);
- institutional reforms, including decentralisation, which might make governments more receptive to poor people's voices; and
- improving the flow of market information into rural communities.

### Box 3.2. Civil society organisations that give poor people a voice

**Interest groups can play an important role in shaping agricultural developments in favour of poor people, by enabling poor people to express their views and influence policy processes in a meaningful way.**

**In Latin America, there has been a long tradition of peasant mobilisation by popular movements to influence change. Another example is in Senegal, where the *Comité National de Concertation des Ruraux* brings together several producer federations. It has become one of the main participants in discussions between government, international aid donors and producers on agriculture-related issues like land tenure.**

**On a smaller scale in Sumatra, traditional village governance institutions have re-emerged in the past five years to deal with agricultural tenure issues and to represent local concerns in external discussions.**

**Source and further details on the role of civil society: DFID, 2004m.**

## 3.4 Filling the agricultural finance gap

108. Finance remains a real obstacle for many poor farmers (DFID, 2004c). Their income comes only after harvest and many do not have sufficient access to credit, savings or remittances to finance the costs of inputs such as seed and fertiliser. The previous generation of state-operated activities, such as targeted agricultural finance schemes and input schemes operated by parastatal marketing organisations, has not worked effectively. Much has been learned about effective microfinance and promising models for improving poor people's access to financial services are beginning to take root in many countries. But microfinance is often not available to poor farmers or for agricultural

activities, except where there are relatively concentrated populations and quite well-diversified economies, such as Bangladesh. Women may face additional constraints to borrowing due to their lack of collateral or the small scale of their activities.

109. The situation is particularly acute in much of rural Africa where a combination of agricultural risk, scarce borrower information, cumbersome legal procedures and high transaction costs mean that many financial service providers are reluctant to serve small farmers. There is a shortage of seasonal credit to agriculture and what credit there is tends to be provided by informal institutions, agribusiness traders and processors, rather than by formal financial institutions (Dorward et al, 2001; Murdoch, 1999; DFID, 2004c). Government subsidy and guarantees may be justified in these circumstances (although not interest rate subsidies) in order to build the capacity of rural and agricultural finance providers.

### 3.5 Realising the benefits of technology

110. Technology is central to accelerating agricultural growth (DFID, 2004d). Realising the benefits of technology and innovation will require: working with poor farmers to identify and tackle their key problems; concerted efforts to develop a range of new technologies and practices; and systems that enable farmers to hear about, choose from and obtain appropriate new and existing technologies.

111. Research plans must be developed for specific contexts with promotion of adaptation and uptake factored in from the beginning. They should reflect agriculture's expected role in growth and poverty reduction and address the implications of longer-term trends such as climate change. Research resources will need to focus on locations and markets where there is potential for improved productivity and strong links to the wider economy and in particular on food staples. Attention should be placed on employment-generating technologies, making better use of water and tackling soil fertility.

112. For this to happen, there needs to be an effective system of publicly funded agricultural research at the national and international level, and systems in place to make technology and information available to the people who need it. International agricultural research has built up an impressive record to date, but improvements are still needed in the linkages between clients and researchers, and between national and international parts of the system. Better public access to privately financed agricultural research is also needed.

113. A precautionary approach to biotechnology is advocated by the Cartagena Biosafety protocol.<sup>32</sup> Biotechnology has the potential to provide significant benefits for poor people if it provides technologies relevant to their needs and is managed safely. This is particularly true for Africa, where there is limited potential to improve yields of major staples from existing varieties.

<sup>32</sup> <http://www.biodiv.org/biosafety/default.asp>

Biotechnology must be accompanied by supportive public policies, assurances on safety, and adequate regulation.

114. Concerted measures are also needed to improve public access to new technologies, which are often privately developed (DFID, 2004d) (see Box 3.3).

### Box 3.3 Accessing the knowledge of the private sector

**Public spending on agricultural research in Africa is falling. At the same time, research spending by the private sector is increasing and many companies are developing new technologies which could be of great benefit to Africa's resource-poor farmers. Improving public access to these technologies – many of which are covered by patents – is a matter of increasing urgency.**

**Supported by USAID, the Rockefeller Foundation and DFID, the The African Agricultural Technology Foundation (AATF) is a not-for-profit foundation based in Nairobi, led, managed and directed by Africans. It helps farmers access productivity-enhancing agricultural technologies held by the private sector by facilitating public-private partnerships. In order to do this, the AATF negotiates royalty-free transfers of patented technologies and enters into contractual arrangements with institutions that will manage the use of these technologies.**

**Similarly, the Global Alliance for Livestock Vaccines has meant that a partnership between large pharmaceutical companies and development agencies is making livestock-disease technology available to developing countries. New vaccines that tackle 20% of animal deaths are projected to be developed in the next ten years.**

115. Better uptake pathways for technology are needed. In many parts of the world, particularly Africa, agricultural extension services are severely limited in their ability to reach farmers. There have been many innovations in recent years in more diverse knowledge systems that involve the public and private sectors. NGOs can also play an important role: they tend to have credibility with farmers and are effective at accessing poor people (Meinzen-Dick et al, 2003). The challenge is to develop systems at scale in a cost-effective manner. Many farmers are unable to access good-quality seeds due to the withdrawal of many commercial seed companies. Making new knowledge and innovations available to farmers is a priority.

### 3.6 Improving access to resources and secure property rights

116. Agricultural growth has benefited poor people most where land ownership has been relatively equitable (Easterly, 2001; Mellor, 2001b). Land ownership, however, often remains inequitable, reducing agriculture's potential to reduce poverty (Binswanger et al, 1995).

117. Well-defined and secure property rights are important in encouraging farmers to invest (DFID, 2004e). Without them few farmers will take the risk of improving land which they may lose. Clear and transferable property rights that are recognised by banks also allow land to be used as security by farmers wanting to borrow money. This is particularly important for poor farmers who would otherwise have limited access to credit (Deininger, 2003; de Soto, 2003).

118. The extent to which formal land titling and registration are important in defining property rights, however, varies. As economies develop, more formal legal-based systems become more important. In less developed situations, formal titling may be less important, provided local practice accepts informal tenure.

119. In situations where land is increasingly bought and sold, evidence indicates that formal land titling and registration are very important for farmers. For example, in Thailand, the widespread introduction of formalised land titles was seen as central to farmers accessing credit as the title provided them with a credible means of offering their land as security against the loan (Feder, 1987). In contrast, research undertaken in three African countries (Ghana, Kenya and Rwanda) showed that investment and the use of credit did not differ significantly between land titled to individuals and land that was otherwise similar, but untitled and held in communal tenure (Migot-Adholla and Bruce, 1994).

120. Moreover, formal land titling is not a substitute for improving the rural poor's share of land. It can become a weapon for the strong – who have good lawyers and formal title – against the weak – who have neither (Platteau, 2000). The process of land titling and registration is often cumbersome and slow. Land administration systems need to be "fit for purpose". Governments need to better match legal requirements to administrative capacity. Where there is strongly shared identity and interest, group titling may be a feasible alternative that is often not recognised in law.

121. Apart from outright ownership, there are a variety of other ways in which poor farmers can increase their access to land. These include approaches such as leasehold or sharecropping. There is growing evidence that these systems can be both efficient and equitable (Deininger, 2003). However, in many countries the legislation dealing with leasing and sharecropping is unnecessarily restrictive and needs revising.

122. Special attention needs to be given to land access for the most marginalised communities and this is already starting to be addressed. For example, national legislation and international conventions are increasingly recognising indigenous land rights. But formal recognition of these rights needs to be complemented by far-reaching action that empowers communities to exercise them (Deininger, 2003: 66). Furthermore, regulation must ensure that formal land titling does not result in the poor being excluded from common lands.

123. Women's rights to land have traditionally been neglected, and their access to land often depends on their relationship with men. Innovative legislation has been introduced in India and parts of Latin America, for example, to provide women with joint titling and equal access to courts for adjudication of land disputes. But to make this legislation effective, complementary measures are needed to monitor how it is being put into practice, and to ensure that women are aware of their rights (Deininger, 2003: 57-62).

124. In land redistribution, "willing buyer, willing seller" must remain the central principle. Making this effective for poor people means measures to help them to buy land, and to encourage landowners to sell it to the poor. To achieve this, legal and administrative procedures must be simplified and the financial position of the poor must be strengthened.

125. Expanding irrigation, as noted by the Commission for Africa, is fundamental to improving agricultural performance. But water is becoming increasingly scarce. Water resources are often shared across borders, making resource management complex. In areas where expanding large-scale irrigation is unfeasible, the focus must be on developing smaller-scale irrigation and water-management systems.

126. Measures are also often needed to improve equal distribution of irrigation water. The establishment of tradable water rights could play an important role in achieving this and in improving the efficiency of water use.

### **3.7 Reducing distortions in international markets**

127. Subsidies, tariffs and non-tariff barriers can distort patterns of international agricultural trade and prices, and must be reduced (DFID, 2004j). The World Trade Organisation's Doha agreement (2001) contains commitments by developed countries to do this, but progress has been slow.

128. The move to a more liberalised international agricultural trade regime will not bring the same benefits to all countries. It may cause difficulties for some developing countries, in particular those dependent upon food imports or those losing preferential access to markets. Measures will be needed to help these countries to adjust. Nevertheless, in the long term, liberalisation should result in a more favourable international structure of agricultural prices which should benefit most poor countries.

## Growth and poverty reduction: the role of agriculture

---

129. At the regional level, tariffs and cumbersome customs procedures often restrict cross-border and “informal” trade. They are an impediment to market development and should be removed. Infrastructure also needs to be improved to reduce high transport and distribution costs as these expenses often make regionally produced products uncompetitive relative to imports.

130. We are committed to improving agriculture’s performance, particularly in Africa, as an effective contribution to poverty reduction. Making this happen will require more effective development assistance. It will need a concerted, long-term commitment from us and from partners, including developing country governments; other development agencies; important regional initiatives such as the Comprehensive African Agricultural Development Programme (CAADP) produced by the African Union (AU) and its programme the New Partnership for Africa’s Development (NEPAD); civil society and the private sector. Our effort will be guided by the principles and priorities outlined in this document.

131. This document provides the essential rationale for DFID to support agriculture and lays out the principles that should direct our work. We will:

- work with partners to galvanise international support for agricultural development;
- assist developing countries to use their own resources to achieve faster agricultural growth; and
- assist developing countries to achieve more effective handling of agriculture in the next generation of poverty reduction strategies, with a particular emphasis on its role in achieving faster poverty-reducing economic growth through its links to the wider economy.

132. Working within the framework of countries’ own plans and priorities, we will:

- focus on improving the effectiveness of our development assistance to agriculture; and
- find practical ways to harmonise our support with that provided by others, based on our relative strengths and presence in specific countries.

133. We recognise that important differences exist between countries in their ability to use development assistance, including specific issues in fragile states. We will:

- match the way we provide assistance to agriculture (including the balance between project support and poverty reduction budget support) to each country’s situation, with the objective of providing stable, predictable and useful resources.

134. Measuring the impact of this new approach on our actions is important and we will:

- publicly take stock within three years of how we are performing against the commitments we have made.

135. The emphasis given to agriculture’s wider role in poverty reduction, particularly through accelerating economic growth, represents a change from our recent approach that has focused on the direct contribution to rural livelihoods. Within the framework provided in this document

## Growth and poverty reduction: the role of agriculture

---

eight areas for action emerge. The timing and priority of these actions will vary according to circumstances, including:

- the potential to improve agriculture's impact on growth and poverty reduction in a cost-effective way relative to investments in other sectors;
- countries' own policy priorities, their poverty reduction and growth strategies and their ability to use development assistance; and
- DFID's expertise and local presence relative to that of other development agencies.

136. Actions to improve agriculture must also be part of a broader development approach to manage the different impacts that policy change and economic transition will have on different groups in society.

### Creating a supportive policy framework

137. We will support developing country governments to:

- create a long-term vision for agriculture and to reflect this within their poverty reduction strategies;
- ensure the participation of representatives of the rural poor in shaping agricultural policies;
- strengthen and, if appropriate, reform public sector institutions so they can deliver important functions which support agricultural development;
- ensure that agricultural development strategies provide incentives for the sustainable use of natural resources and environmental services; and
- meet internationally agreed labour standards.

### Better focusing public spending in agriculture

138. Working with governments and our development agency partners, we will:

- help to build the capacity and accountability of governments to direct public spending to where it will have the greatest impact on agricultural growth and poverty reduction. This may include the spending of ministries other than agriculture; and
- where appropriate, encourage governments to allocate resources to rural infrastructure – particularly roads – and support efforts to involve the private sector in funding infrastructure.

## Making markets work better

139. Working with government, civil society and the private sector, we will:

- support countries to reform cumbersome business and other regulations which discourage investment and risk-taking by farmers;
- in Africa, especially, find practical ways to overcome market failures in key input and output markets, including through the use of guarantees or targeted subsidies; and
- work in partnership with the food industry – including supermarkets – to minimise the impact of company-imposed standards on poor farmers. We will support pilot projects to bring together retailers, small producer organisations and standard-setting bodies to ensure smallholders can access markets.

## Meeting the agricultural finance gap

140. We will work with our partners to improve men's and women's access to rural financial services, including remittances, with a particular focus on seasonal credit, by:

- supporting the innovative use of existing and developing infrastructure for rural financial services, such as post offices, banks (for example state, commercial, co-operative and microfinance banks), microfinance institutions, retail outlets and the commercial agricultural sector;
- better understanding and addressing the finance and investment constraints faced by commercial agriculture, particularly in Africa;
- funding the Consultative Group to Assist the Poor (CGAP) and the Financial Sector Reform and Strengthening Initiative (FIRST) to extend access to financial services in rural areas;
- working with international financial institutions, African central banks and African ministries of finance to prioritise access to finance, and to equip them with data, survey tools and headline indicators to measure progress on reducing financial exclusion; and
- extending access to remittances in rural areas through funding technology innovations, removing policy barriers and improving the availability of market data.

### Realising the benefits of agricultural science and technology

141. Working with governments, other donors and the international agricultural research agencies, we will:

- increase our financial support for public research into agricultural science and technology, and work to improve poor people's access to research findings;
- prioritise technologies with the greatest potential to reduce poverty through their contribution to economic growth and employment creation, and to address longer-term issues including HIV/AIDS, changing market conditions and climate change;
- improve the access of resource-poor farmers to the products of privately funded research through mechanisms like the African Agricultural Technology Foundation;
- improve farmers' access to high-quality seed by supporting initiatives such as the Seeds of Development Programme which aim to develop the capacity of private sector organisations to provide services to poor farmers;
- support international efforts to prevent the loss of genetic diversity in important food crops and animals and to ensure biosafety; and
- help countries to develop feasible, low-cost regulatory systems to ensure the safe application of new technologies.

### Improving poor people's access to land and water

142. Working with developing country governments, civil society and other development agencies, we will, in accordance with EU guidelines:<sup>33</sup>

- when requested, support programmes for voluntary land redistribution by increasing poor people's ability to buy land and by making legal processes more accessible to them;
- support efforts to improve land policy and legal and administration systems, including initiatives to make leasehold and other systems operate more efficiently and consistently with the land rights of marginalised groups and women; and
- support programmes seeking to improve access to water resources by the poor.

<sup>33</sup> European Commission (2004)

## **Making social protection complementary to agricultural growth**

143. Working with our developing country partners and other development agencies, we will:

- gather evidence of the impacts of social protection on investment in productive activity and on local markets; and
- use this evidence to inform dialogue with governments on how and why to improve links between social protection and agricultural development policies.

## **Making international agricultural trade benefit the poor**

144. Working closely with other UK government departments, we will:

- work with European development agencies towards progressive reform of the EU's Common Agricultural Policy in ways that benefit developing countries;
- work to ensure that the EU adopts a pro-poor stance in negotiations with the World Trade Organisation;
- ensure that research is carried out into the impacts on developing countries of developed countries' agricultural and trade policies, the results shared with the international community, and developing countries supported in using the resulting evidence;
- combine our efforts to liberalise trade with efforts to help low-income countries respond effectively to any resulting market opportunities;
- ensure that international negotiations about agricultural liberalisation deal with the transitional needs of countries facing immediate difficulties, including those that rely upon imported food or will lose preferential market access;
- work in partnership with international standard-setting organisations to ensure that new product standards are based on assessments of risk and are not attempts to protect markets;
- help developing countries to participate in these formal standard-setting procedures; and
- ensure that estimates of the impacts of changes to EU standards on imports from developing countries are always publicised.

# Annex 1

## Agriculture's contribution to GDP in selected countries where DFID works

Country	Value added as % of GDP (2002)
Bangladesh	22.73
China	15.38
Congo, Dem. Rep.	57.88
Ethiopia	42.33
Ghana	36.00
India	22.67
Kenya	16.89
Lesotho	17.30
Malawi	36.70
Mozambique	26.56
Nigeria	31.18
Pakistan	23.21
Rwanda	41.87
Sierra Leone	52.40
South Africa	4.12
Sudan	39.19
Tanzania	44.66
Uganda	30.96
Zambia	22.20
Zimbabwe	17.40

Source: World Bank (2004)

## References

- Barrett, C.B., M. Besfuneh, D. C. Clay and T. Reardon (2000) "Heterogeneous Constraints, Incentives and Income Diversification Strategies in Rural Africa", *Quarterly Journal of International Agriculture* 44(1):37-60.
- Barrientos, S. and A. Kritzing (2003) "The poverty of work and social cohesion in global exports: The case of South African fruit". In D. Chidester (ed.) *Beyond Solidarity? Social Cohesion in a Globalizing World*. Human Sciences Research Council and National Development and Labour Council, Pretoria.
- Beghin, J.C., D. Roland-Holst and D. van der Mensbrugge (2002) "Global Agricultural Trade and the Doha Round: What are the Implications for the North and South?" Working paper 02-WP 308. Center for Agricultural and Rural Development, Iowa State University, Iowa.
- Bell, C., P. Hazell and R. Slade (1982) *Project Evaluation in Regional Perspective*. Johns Hopkins University Press, Baltimore.
- Binswanger, Deininger, and Feder (1995) "Power, Distortions, Revolt, and Reform in Agricultural Land Relations" in Behrman and Srinivasan (eds.) *Handbook of Agricultural Economics*. 3b North-Holland, Amsterdam pp2661-2772.
- Block, S. and P. Timmer (1994) *Agriculture and Economic Growth: Conceptual Issues and the Kenyan Experience*. Harvard Institute for International Development, Cambridge, MA.
- Brown, L. and H. Kane (1994) *Full House: Reassessing the Earth's Population Carrying Capacity*. The Worldwatch Environmental Alert Series. W.W. Norton and Co., New York.
- Bruinsma, J (ed.) (2003) *World Agriculture: Towards 2015/2030: An FAO Perspective*. FAO/Earthscan Publications Ltd, UK. Available at: <http://www.fao.org/docrep/005/y4252e/y4252e00.htm>
- Bryceson, D. (1999b) "Sub-Saharan Africa Betwixt and Between". Working Paper. African Studies Centre, University of Leiden, the Netherlands. Available at: <http://asc.leidenuniv.nl>
- Bunch, R. (2002) "Changing productivity through agroecological approaches in Central America". In N. Uphoff (ed.) *Agroecological Innovations*. Earthscan, London.
- Chronic Poverty Research Centre (2004) *The Chronic Poverty Report 2004–05*. Chronic Poverty Research Centre, Institute for Development Policy and Management, University of Manchester, Manchester.

## Growth and poverty reduction: the role of agriculture

---

Coulter, J.P. and G.E. Onumah (2002) "The role of warehouse receipt systems in enhanced commodity marketing and rural livelihoods in Africa". *Food Policy*, 27(4): 319-337.

Cross (2002) "A Comparative Study of Land Tenure Reform in Four Countries: Uganda, Tanzania, Malawi, Kenya, Livelihoods and Diversification Directions Explored by Research", Working Paper No 31, University of East Anglia, Norwich.

Dana, Julie, C.L. Gilbert, E. Shim (2005) "Hedging Grain Price Risk in SADC: Case Studies of Malawi and Zambia", paper presented at World Bank-DFID workshop "Managing Food Price Risk and Instability", Washington DC, February 28 – March 1, 2005.

de Haen, H., K. Stamoulis, P. Shetty and P. Pingali (2003) "The world food economy in the twenty-first century: Challenges for international cooperation". *Development Policy Review* 21(5-6): 683–696.

de Soto, H. (2003) *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*. Basic Books, New York, NY.

Deininger, K. (2003) *Land Policies for Growth and Poverty Reduction*. World Bank Publications, Washington DC.

Delgado, C., J. Hopkins and V. Kelly (1998) "Agricultural Growth Linkages in Sub-Saharan Africa". IFPRI Research Report 107. International Food Policy Research Institute, Washington DC.

Dev, Mahendra (1998) "Regional Disparities in Agricultural Labour Productivity and Rural Poverty". *Indian Economic Review*, 23 (2): 167-205.

DFID (2002) *Better livelihoods for poor people: the role of agriculture*. DFID, London.

DFID (2003a) *Eliminating Hunger: Strategy for Achieving the Millennium Development Goal on Hunger*. DFID, London.

DFID (2003b) *Sustainable Agriculture Keysheet No 10*, Overseas Development Institute, London. [www.keysheets.org](http://www.keysheets.org)

DFID (2004a) *Agriculture, Growth and Poverty Reduction*. Agriculture and Poverty Reduction Working Paper 1, DFID, London. Available at <http://dfid-agriculture-consultation.nri.org/process.htm>

DFID (2004b) *Making Agricultural Markets Work for the Poor*. Agriculture and Poverty Reduction Working Paper 2, DFID, London. Available at <http://dfid-agriculture-consultation.nri.org/process.htm>

DFID (2004c) Making Rural Finance Count for the Poor. Agriculture and Poverty Reduction Working Paper 3, DFID, London. Available at <http://dfid-agriculture-consultation.nri.org/process.htm>

DFID (2004d) "Technology and Its Contribution to Pro-Poor Agricultural Development". Agriculture and Poverty Reduction Working Paper 4, DFID, London. Available at <http://dfid-agriculture-consultation.nri.org/process.htm>

DFID (2004e) "Land Reform, Agriculture and Poverty Reduction". Agriculture and Poverty Reduction Working Paper 5, DFID, London. Available at <http://dfid-agriculture-consultation.nri.org/process.htm>

DFID (2004f) "Recognising and Addressing Risk and Vulnerability Constraints to Pro-Poor Agricultural Growth". Agriculture and Poverty Reduction Working Paper 6, DFID, London. Available at <http://dfid-agriculture-consultation.nri.org/process.htm>

DFID (2004g) "Agriculture, Hunger and Food Security". Agriculture and Poverty Reduction Working Paper 7, DFID, London. Available at <http://dfid-agriculture-consultation.nri.org/process.htm>

DFID (2004h) "Official Development Assistance to Agriculture". Agriculture and Poverty Reduction Working Paper 9, DFID, London. Available at <http://dfid-agriculture-consultation.nri.org/process.htm>

DFID (2004i) "Rethinking Tropical Agricultural Commodities". Agriculture and Poverty Reduction Working Paper 10, DFID, London. Available at <http://dfid-agriculture-consultation.nri.org/process.htm>

DFID (2004j) "Agricultural Trade and Poverty Reduction: Opportunity or Threat?". Agriculture and Poverty Reduction Working Paper 11, DFID, London. Available at <http://dfid-agriculture-consultation.nri.org/process.htm>

DFID (2004k) "Agricultural sustainability". Agriculture and Poverty Reduction Working Paper 12, DFID, London. Available at <http://dfid-agriculture-consultation.nri.org/process.htm>

DFID (2004l) "Concentration in Food Supply and Retail Chains". Agriculture and Poverty Reduction Working Paper 13, DFID, London. Available at <http://dfid-agriculture-consultation.nri.org/process.htm>

DFID (2004m) "Use of Civil Society Organisations to Raise the Voice of the Poor in Agricultural Policy". Agriculture and Poverty Reduction Working Paper 14, DFID, London. Available at <http://dfid-agriculture-consultation.nri.org/process.htm>

## Growth and poverty reduction: the role of agriculture

---

DFID (2004n) Labour standards and poverty reduction. DFID, London.

DFID (2005a) DFID's work on international trade and development 2005-2007. DFID, London.

DFID (2005b) "Agriculture and Infrastructure Linkages". Working Paper, DFID, London.

DFID (2005c) "Inequality: its role in growth and income poverty reduction". Pro-Poor Growth Briefing Note 3. Working Group on Inequality and Social Exclusion. DFID, London.

DFID (2005d) "Reducing poverty by tackling social exclusion". A DFID policy paper. DFID, London.

DFID (2005e) "Social transfers and chronic poverty: emerging evidence and the challenge ahead". A DFID Practice Paper. DFID, London.

Diao, X. and P. Hazell (2004) "Exploring Market Opportunities for African Smallholders". Brief prepared by the International Food Policy Research Institute for a conference on "Assuring Food and Nutrition Security in Africa by 2020: Prioritizing Actions, Strengthening Actors, and Facilitating Partnerships". Kampala, Uganda, 1–3 April 2004.

Dorward, A., J. Kydd, J. Morrison and I. Urey (2004) "A Policy Agenda for Pro-poor Agricultural Growth". *World Development* 32(1) 73-89.

Dorward, A. and J. Kydd (2003) "Implications of Market and Coordination Failures for Rural Development in Least Developed Countries". Paper presented at the Development Studies Association Annual Conference, Strathclyde University, Glasgow, 10–12 September 2003.

Dorward, Poole, Morrison, Kydd, and Urey (2003) "Markets, Institutions and Technology: Missing Links in Livelihoods Analysis", *Development Policy Review*, 21 (3): 319-332.

Dorward, A., C. Poulton, and J. Kydd (2001) "Rural and Farmer Finance: An International Perspective". Paper presented at a workshop on Rural Finance at the Agricultural Economics Association of South Africa Conference, 19 September 2001.

Dyson, T. (1999) "World food trends and prospects to 2025". *Proceedings of the Academy of Sciences of the United States of America* 96 (11): 5929–5936.

Easterly, W. (2001) *The Elusive Quest for Growth: Economists' Adventures and Misadventures in the Tropics*. MIT Press, Cambridge, MA.

- Eastwood, R.K, M. Lipton, and A.T. Newell (2005) "Farm Size". Evenson, R. and Pingale, P, (eds)., Handbook of Agricultural Economics, Volume III. North-Holland, Amsterdam.
- Ellis, S. and J. Hine (1998) "The Provision of Rural Transport Services, Sub-Saharan Africa Transport". Policy Program Working Paper No 37, World Bank, Washington DC.
- Ellis, F. (2000b) Rural Livelihoods and Diversity in Developing Countries. Oxford University Press, Oxford.
- European Commission (2004) "EU Guidelines to support land policy design and reform processes in developing countries". 686 final communication from the commission of the European Communities to the council and the European Parliament, Brussels.
- Fan, S., X. Zhang, and N. Rao (2004) "Public Expenditure, Growth and Poverty Reduction in Rural Uganda". DSGD Discussion Paper No. 4, IFPRI, Washington DC.
- Fan, S. and P. Hazell, (2002) "Returns to public investments in the less-favoured areas of India and China". American Journal of Agricultural Economics 83 (5), 1217–1222.
- Fan, S. and P. Hazell (2000a) "Are Returns to Public Investment Lower in Less-Favored Rural Areas? An Empirical Analysis of India". Economic and Political Weekly (April 22, 2000): 1455B1463.
- Fan, S., L. Zhang, and X. Zhang (2000b) "Growth and Poverty in Rural China: The Role of Public Investments". Environment and Production Technology Division Discussion Paper No. 66. IFPRI, Washington DC.
- Fan, S. and N. Rao (2003) "Public Spending in Developing Countries: Trends, Determination and Impact" EPTD Discussion Paper No. 99. IFPRI, Washington DC.
- Farrington, J.P. Deshingkar, C. Johnson and D. Start (2005) Policy Windows and Livelihood Futures: Prospects for Poverty Reduction in Rural India. Oxford University Press, forthcoming.
- FAO (2000) The State of Food and Agriculture: Lessons from the Past 50 Years. FAO, Rome.
- FAO (2004) The state of agricultural commodity markets. FAO, Rome.
- FAOSTAT (2004) Available at <http://www.faostat.fao.org/>
- Feder, G. (1987) "Land Ownership Security and Farm Productivity: Evidence from Thailand". Journal of Development Studies, 24(1):16–30, 1987.

## Growth and poverty reduction: the role of agriculture

---

Franzel, S., D. Phiri and F. Kwesiga (2002) "Assessing the adoption potential of improved fallows in eastern Zambia." In S. Franzel and S. Scherr (eds.) *Trees on Farm: Assessing the Adoption Potential of Agroforestry Practices in Africa*. CAB International, Wallingford.

Gallup, J., S. Radelet and A. Warner (1997) "Economic Growth and the Income of the Poor". CAER II Discussion Paper No. 36. Harvard Institute for International Development, Boston MA.

Haggblade, S., P. Hazell and T. Reardon (2002) "Strategies for Stimulating Poverty-Alleviating Growth in the Rural Non-Farm Economy in Developing Countries". Environment and Production Technology Paper 92, IFPRI, Washington DC.

Harvey (2005) "Cash and Vouchers In Emergencies", HPG Discussion Paper, ODI, London.

Hazell, P. (2005) "The Role Of Agriculture And Small Farms In Economic Development". Paper presented at "The Future of Small Farms" research workshop, June 26-29, 2005, Withersdane Conference Centre, Wye, UK.

Hazell, P. and B. Hojjati (1995) "Farm / Nonfarm Linkages in Zambia". *Journal of African Economies*, 4(3): 406-435.

Hazell, P. and C. Ramasamy (1991) "The Green Revolution Reconsidered: The Impact of High-Yielding Rice Varieties in South India". Johns Hopkins University Press, Baltimore and London.

Hazell, P. and E. Lutz (1998) "Integrating environmental and sustainability concerns into rural development policies". In E. Lutz, H. Binswanger, P. Hazell and A. McCalla (eds) *Agriculture and the Environment: Perspectives on Sustainable Rural Development – A World Bank Symposium*. World Bank, Washington DC.

Heltberg, R. (1998) "Rural market imperfections and the farm size–productivity relationship: Evidence from Pakistan". *World Development* 26(10): 1807–1826.

IFPRI (2002) "Cutting Hunger in Africa through Smallholder-led Agricultural Growth". Technical paper in support of USAID's Agricultural Initiative to Cut Hunger in Africa (AICHA). IFPRI, Washington DC.

International Panel on Climate Change (IPCC) (2001) *Third Assessment Report of the IPCC*. Cambridge University Press, Cambridge.

- Johnston, B.F. and J.W. Mellor (1961) "The role of agriculture in economic development". *American Economic Review* 51(4): 566–593.
- Jayne, T.S., J.D. Shaffer, J.M. Staatz and T. Reardon (1997) "Improving the Impact of Market Reform on Agricultural Productivity in Africa: How Institutional Design Makes a Difference", MSU Working paper No. 66, Michigan State University, East Lansing MI.
- Kelley, T. and D. Byerlee (2003) *Surviving on the Margins: Agricultural research and Development Strategies for Poverty reduction in Marginal Areas*. World Bank, Washington DC.
- Kherallah, M., C. Delgado, E. Gabre-Madhin, N. Minot and M. Johnson (2000) *The Road Half Travelled: Agricultural Market Reform in Sub-Saharan Africa* IFPRI, Washington DC, [www.ifpri.org](http://www.ifpri.org)
- Klassen, S (2005) "Pro-Poor Growth and Gender: what can we learn from the literature and the OPPG case studies?" Discussion paper for the Operationalising Pro-Poor Growth (OPPG) Working Group of AFD, DFID, BMZ (GTZ/KfW) and the World Bank.
- Kumar, M.D. (2002) "Making the Montage: Setting the Agenda and Priorities for Water Policy Research in India". Report of the annual partners' meet of International Water Management Institute – Tata Water Policy Research Programme, Gujarat, India, 19–20 February 2002.
- Kydd, J., A. Dorward, J. Morrison and G. Cadisch (2004) "Agricultural development and pro-poor economic growth in sub-Saharan Africa: Potential and policy". *Oxford Development Studies* 32(1).
- Lele, U. and M. Agarwal (1989) "Smallholder and Large-Scale Agriculture in Africa: Are there Tradeoffs between Growth and Equity?" MADIA Discussion Paper No. 6. World Bank, Washington DC.
- Levy, S., C. Barahona and B. Chinsinga (2004) "Food Security, Social Protection, Growth And Poverty Reduction Synergies: The Starter Pack Programme In Malawi". ODI Natural Perspectives Paper, ODI, London.
- Lewis, W.A. (1955) *The Theory of Economic Growth*. Allen and Unwin, London.
- Lipton, M. (2004) *New Directions for Agriculture in Reducing Poverty: The DFID Initiative*. Available at: <http://dfid-agriculture-consultation.nti.org/launchpapers/michaelliption.html>
- Lipton, M. and R. Longhurst (1989) *New Seeds and Poor People*. The Johns Hopkins University Press, Baltimore, MD.

## Growth and poverty reduction: the role of agriculture

---

Maxwell, S. (1991) "The disincentive effect of food aid: A pragmatic approach". In E.J. Clay and O. Stokke (eds) *Food Aid Reconsidered: Assessing the Impact on Third World Countries*. EADI Book Series 11. Frank Cass, London.

Maxwell, S. (2004) *Launching the DFID consultation "New Directions for Agriculture in Reducing Poverty"*. Available at <http://dfid-agriculture-consultation.nri.org/launchpapers/simonmaxwell.html>

McCalla, A. F. (1994) "Food Needs to 2025: Why We Should Be Concerned". Sir John Crawford Memorial Lecture, International Centres Week, Mexico City, Mexico, 27 October 1994. Consultative Group on International Agricultural Research and the World Bank, Washington DC.

Meinzen-Dick, R., M. Adato, L. Haddad and P. Hazell (2003) "Impacts of agricultural research on poverty: findings of an integrated economic and social analysis". EPTD Paper 111. IFPRI, Washington DC.

Mellor, J. (2001a) *Reducing Poverty, Buffering Economic Shocks – Agriculture and the non-tradable Economy*. FAO, Rome.

Mellor, J. (2001b) "Faster More Equitable Growth – Agriculture, Employment Multipliers and Poverty Reduction", paper prepared for USAID/G/EGAD, USAID, Washington DC.

Migot-Adholla and J. Bruce (1994) "Introduction: Are Indigenous African Tenure Systems Insecure?" *Searching for Land Tenure Security in Africa* (eds.). Kendall-Hunt Publishing, Dubuque IA.

Murdoch, J. (1999), "The Microfinance Promise". *Journal of Economic Literature* 37: 1569-1614.

Neven, D., and T. Reardon (2004) "The Rise of Kenyan Supermarkets and the Evolution of their Horticulture Product Procurement Systems". *Development Policy Review*, 22(6): 669-699

Nugent (2000) "The impact of urban agriculture on the household and local economies". In N. Bakker, M. Dubbeling, S Gundel, U. Sabel-Koscella and H. de Zeeuw (eds.) *Growing Cities, Growing Food*, DSA, Eurasburg.

OECD (2004) *Development Assistance Committee Statistics*. Available at [www.oecd.org/dac/stats](http://www.oecd.org/dac/stats)

Parry, M., C. Rosenzweig, A. Iglesias, G. Fischer and M. Livermore (1999) "Climate change and world food security: a new assessment". *Global Environmental Change* 9 (1): s51–s67.

- Platteau, Jean-Philippe (2000) "Does Africa Need Land Reform?" In Toulmin, C. and Quan, J. (eds.) *Evolving Land Rights, Policy and Tenure in Africa*. DFID/IIED, London.
- Pretty, J. N. (2000) "Can sustainable agriculture feed Africa?" *Environment, Development and Sustainability* 1: 253–274.
- Rao, K. and G. Okwach (2005) "Enhancing productivity of water under variable climate". Paper prepared for The East African Integrated River Basin Management Conference, 7-9 March 2005. Morogoro, Tanzania.
- Ravallion, M. (2003) "Targeted Transfers in Poor Countries: Revisiting the Trade-Offs and Policy Options". *Social Safety Net Primer Series*, World Bank, Washington DC.
- Ravallion, M. (2001) "On the Urbanisation of Poverty". World Bank Working Paper 2568. World Bank, Washington DC.
- Ravallion, M. and G. Datt (1999) "When is Growth Pro-Poor? Evidence from the Diverse Experience of India's States". World Bank Policy Research Working Paper Series 2263. World Bank, Washington DC.
- Ravallion, M and S Chen (2004) "Learning from Success: Understanding China's (uneven) progress against poverty". *Finance and Development*, 41(4): 16-19.
- Reardon, T. and J. Berdegue (2002) "The rapid rise of supermarkets in Latin America: Challenges and opportunities for development". *Development Policy Review* 20(4): 317–334.
- Rosegrant, M., M. Painer, S. Meijer and J. Witcover (2001) *Global Food Projections to 2020: Emerging Trends and Alternative Futures*. IFPRI, Washington DC.
- Sabates-Wheeler, R (2005) "Asset Inequality and Agricultural Growth: How are patterns of asset inequality established and reproduced?" *World Development Report Background Paper*, World Bank, Washington DC.
- Scherr, S. and S. Yadev (2001) "Land degradation in the developing world: issues and options for 2020". In P. Pinstrup-Anderson and Lorch. (eds.) *The Unfinished Agenda. Perspectives on Overcoming Hunger, Poverty and Environmental Degradation*. IFPRI, Washington DC. pp.133-138.
- Sidhu, H.S. (2002) "Crisis in Agrarian Economy in Punjab", *Economic and Political Weekly (EPW)*, July 27.

## Growth and poverty reduction: the role of agriculture

---

Smale, M. (1997) "The Green Revolution and wheat genetic diversity: some unfounded assumptions". *World Development* 25: 1257–1269.

Smith, L. and L. Haddad (2002) "How potent is economic growth in reducing undernutrition? What are the pathways of impact? New cross-country evidence". *Economic Development and Cultural Change* 51(1): 55–76.

Song, L. (2004) Policy Initiatives on Inequality in China. Unpublished report prepared for the project "Policy Initiative on Middle Income Countries and Inequality", DFID and Overseas Development Institute, London.

Stiglitz, J.E. (1998) "Keynote address: an agenda for development in the 21st century". Annual World Bank Conference of Development Economics, April 20-21, Washington DC.

Sundaram, K. and S.K. Tendulkar (2003) "Poverty in India in the 1990s. An analysis of changes in 15 major states". *Economic and Political Weekly*, 5 April 2003: 1385–1393.

Tangermann, S. (2003) "Cutting Support Can Help Farmers to Prosper". *The Financial Times*, 22 August 2003.

Thirtle, C., X. Irz, L. Lin, V. McKenzie-Hill and S. Wiggins (2001) Relationship Between Changes In Agricultural Productivity And The Incidence of Poverty in Developing Countries. Report commissioned by Department for International Development, London.

UN (1996) World Population Prospects: The 1996 Revision. United Nations, New York, NY.

UNCTAD (2003) Economic Development in Africa: Trade Performance and Commodity Dependence. United Nations, New York, NY.

Versteeg, M., F. Amadji, A. Etéka, A. Gogan and V. Koudokpon (1998) "Farmers' adoptability of Mucuna fallowing and agroforestry technologies in the coastal savanna of Benin". *Agricultural Systems* 56: 269–287.

von Braun, J., P. Wobst and U. Grote (2002) "'Development Box' and Special and Differential Treatment for Food Security of Developing Countries: Potentials, Limitations and Implementation Issues", ZEF Discussion Papers on Development Policy, Bonn.

Winarto, Y. (2004) *Seeds of Knowledge: The Beginning of Integrated Pest Management in Java*. Yale University, New Haven, CT.

World Bank (2000) *World Development indicators 2000*. World Bank, Washington DC.

World Bank (2001a) *"Zambia Public Expenditure Review"*. World Bank, Washington DC.

World Bank (2003) *World Development Indicators 2003*. World Bank, Washington DC.

World Bank (2004) *Development Indicators*. Oxford University Press for the World Bank, Oxford.

## Department for International Development

DFID, the Department for International Development: leading the British government's fight against world poverty.

One in five people in the world today, over 1 billion people, live in poverty on less than one dollar a day. In an increasingly interdependent world, many problems – like conflict, crime, pollution, and diseases such as HIV and AIDS – are caused or made worse by poverty.

DFID supports long-term programmes to help tackle the underlying causes of poverty. DFID also responds to emergencies, both natural and man-made.

DFID's work forms part of a global promise to

- halve the number of people living in extreme poverty and hunger
- ensure that all children receive primary education
- promote sexual equality and give women a stronger voice
- reduce child death rates
- improve the health of mothers
- combat HIV & AIDS, malaria and other diseases
- make sure the environment is protected
- build a global partnership for those working in development.

Together, these form the United Nations' eight 'Millennium Development Goals', with a 2015 deadline. Each of these Goals has its own, measurable, targets.

DFID works in partnership with governments, civil society, the private sector and others. It also works with multilateral institutions, including the World Bank, United Nations agencies, and the European Commission.

DFID works directly in over 150 countries worldwide, with a budget of nearly £4 billion in 2004. Its headquarters are in London and East Kilbride, near Glasgow.

DFID's headquarters are located at:

1 Palace Street, London SW1E 5HE, UK

and

Abercrombie House, Eaglesham Road, East Kilbride, Glasgow G75 8EA, UK

Tel: +44 (0) 20 7023 0000

Fax: +44 (0) 20 7023 0016

Website: [www.dfid.gov.uk](http://www.dfid.gov.uk)

E-mail: [enquiry@dfid.gov.uk](mailto:enquiry@dfid.gov.uk)

Public Enquiry Point: 0845 300 4100 or +44 1355 84 3132 (if you are calling from abroad)

© Crown copyright 2005

Copyright in the typographical arrangement and design rests with the Crown. This publication (excluding the logo) may be reproduced free of charge in any format or medium provided that it is reproduced accurately and not used in a misleading context. The material must be acknowledged as Crown copyright with the title and source of the publication specified.

Published by the Department for International Development. Printed in the UK, 2005, on recycled paper containing 80% recycled fibre and 20% totally chlorine free virgin pulp.

Product reference: PD 044

ISBN: 1 86192 733 9