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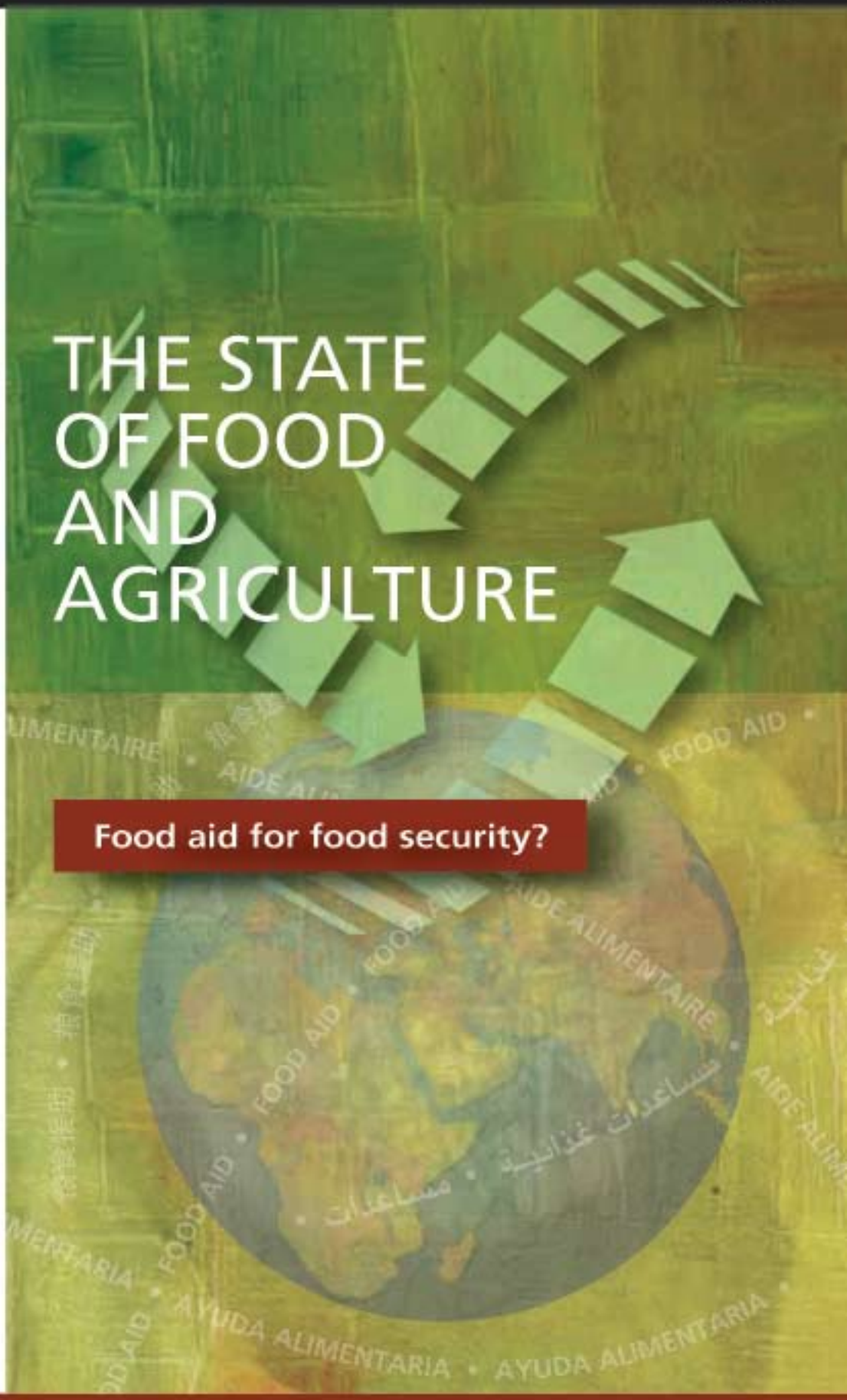
THE STATE OF FOOD AND AGRICULTURE



Food aid for food security?

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Foreword

No person of conscience can deny the moral imperative to help people who are unable to feed themselves; indeed, one of the oldest forms of foreign aid is food aid. Yet many thoughtful observers question whether food aid effectively promotes food security or whether it may, in fact, do more harm than good. *The State of Food and Agriculture 2006* examines the issues and controversies surrounding food aid and seeks to clarify how food aid can – and cannot – support sustainable improvements in food security.

The Food and Agriculture Organization of the United Nations (FAO) estimates that 854 million people in the world lack sufficient food for an active and healthy life, a number that has hardly changed since the early 1990s. The World Food Programme (WFP) provides emergency food aid to millions of people each year – 73 million in 2005 alone – and the number is rising rapidly with the increasing scale and frequency of natural and human-induced disasters.

Despite the magnitude of the global food-security challenge, food aid is relatively small in relation to global production and trade, averaging about 10 million tonnes per year. This amounts to less than 2 percent of global cereal exports and less than 0.5 percent of global production. Food aid has changed significantly in recent years. Until about a decade ago, most food aid was provided bilaterally on a government-to-government basis and was sold on the open market in recipient countries. But, currently, about 75 percent of all food aid is now targeted directly to hungry people through emergency operations or projects addressing chronic hunger.

Food aid has rightly been credited with saving millions of lives. Indeed, food aid is often the only thing standing between a starving child and death. It may be the only resource available to prevent an earthquake or a hurricane from plunging an entire community into a humanitarian crisis. In some cases, food aid distributed through school feeding programmes provides the small inducement necessary to keep a young girl in school, helping to break the vicious cycle that passes poverty from generation to generation.

Food aid, however, is frequently criticized as a donor-driven response, serving the interests of donors rather than the food security needs of recipients. As evidence, critics point to the fact that the quantity of food aid available from year to year varies inversely with world prices, rising when supplies are plentiful and prices low, but falling when supplies are tight and prices high – just when it is needed most.

Some critics charge that food aid creates "dependency" on the part of recipients, allowing them to neglect their own responsibility of achieving food security. Empirical studies find that food aid flows are generally too unpredictable and small for recipients to depend on, and that concerns about such "dependency" are often misplaced. Yet people ought to be able to rely on the availability of assistance when they are unable to secure adequate food on their own.

Development specialists have long been concerned with the risk of imported food aid undermining local agricultural development. Food aid can depress and destabilize local market prices if it is not well managed, potentially threatening the livelihoods of local producers and traders upon whom long-term food security depends. Studies show that these destabilizing effects of food aid are most severe when it arrives at the wrong time or when it is not targeted at needy households.

While the effects of food aid on local prices are well-documented in the literature, there is little evidence to suggest that food aid significantly reduces food production in recipient countries. This is due to the fact that production in many of these countries is currently more dependent on the vagaries of the climate and other factors than on a response to potential demand. In addition, those consumers who can buy food would

prefer locally produced foods when food aid is available at similar prices. In some cases, food aid may actually help affected producers hold onto their essential assets during a crisis, thereby enabling them to resume production more readily when the crisis passes.

The risk of food aid displacing commercial trade has also been recognized for a long time. Although food aid can be beneficial to recipient countries, enabling them to save scarce foreign exchange, many commercial exporters consider it to be a form of unfair competition. This has been one of the most contentious issues discussed in the Doha Round of World Trade Organization (WTO) negotiations. Studies find that food aid partially displaces commercial imports by recipient countries. The trade displacement effect of food aid when it is a short-term phenomenon may actually promote commercial trade in the longer term, perhaps by stimulating consumer demand for a wider variety of foods. Food aid that is well targeted to insecure households and needy people can minimize the trade displacement effect.

Procurement of food aid within the country or region where it is needed has been offered as a possible solution to the problems associated with bringing food commodities directly from donor countries. In 2005, about 15 percent of all food aid was procured locally or regionally. This clearly has the potential of reducing the transaction costs – in money and time – of food aid deliveries, and may support the development of local production and distribution channels; but due attention must be paid to the potential of such transactions to distort local markets, raising food prices for poor consumers who do not receive food aid.

Food aid is often essential in responding to humanitarian emergencies, but considerable controversy surrounds the management of food aid in such circumstances. Food aid tends to dominate the emergency response, even when food supplies remain plentiful, because it is often the only available resource. Greater flexibility in the financing and programming of emergency response, combined with better information, needs assessment and monitoring, could be enormously beneficial in reducing human suffering and saving scarce resources. More prompt responses with appropriate resources could alleviate many food insecurity problems before they become full-scale emergencies requiring huge and very expensive interventions.

Finally, it must be remembered that more than 90 percent of the world's undernourished people are chronically hungry. For them, hunger is a daily burden, an emergency for no one but themselves. Food aid may form an essential part of a social safety net that ensures the fulfillment of the right to food for people who are too poor or too ill to achieve food security on their own. Food aid can be uniquely helpful in some situations – such as supplemental nutrition programmes or food-for-education initiatives – but it is not always the most effective or most appropriate intervention.

On balance, the report finds that food aid can support food security both in emergencies and in cases of chronic hunger *if it is properly managed*. Most of the concerns and controversies regarding food aid – dependency, production disincentives and trade displacement – are closely linked to programming and management decisions. When food aid is poorly timed or poorly targeted, the risk of adverse consequences increases. In many cases, food aid is used because it is the only available resource, not because it is the best solution to the problem at hand. Increased and more flexible resources are needed to address food insecurity. More work is needed to design and implement food security interventions that more effectively and efficiently address the problem, while minimizing the risk of harm. But, whenever possible, it is always "better to teach and help people to fish rather than to give them fish". In the long term the focus should be on preventive measures aiming at an increase in the security of production and in productivity, instead of waiting for crises to rush food aid which by then would be the only option to save starving children and mothers.

Food aid is never sufficient, on its own, to address the root causes of chronic hunger and malnutrition: lack of investment in rural infrastructure (particularly small-scale water control, rural roads, storage facilities, etc.),

low agricultural and labour productivity that limit poor families' purchasing power, poorly functioning markets that drive up the real cost of food for the poor, insufficient access to credit and insurance among the poor, social exclusion and various forms of discrimination, etc. These fundamental problems must be addressed if the world is to achieve the set World Food Summit target and Millennium Development Goals of reducing by half hunger and extreme poverty by 2015.

Jacques Diouf
FAO DIRECTOR-GENERAL

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Two regular members of *The State of Food and Agriculture* team left the organization this year: Randy Stringer, former chief of the Comparative Agricultural Development Service, and Stella di Lorenzo, former secretary to the chief. Their contributions will be greatly missed.

Glossary

CAP	(United Nations) Consolidated Appeals Process
CERF	Central Emergency Response Fund
CFA	Committee on Food Aid Policies and Programmes of WFP
CFSAM	Crop and Food Supply Assessment Mission
CFS	Committee on World Food Security of FAO
CSO	Civil society organization
CSSD	Consultative Sub-Committee on Surplus Disposal (FAO)
DAC	Development Assistance Committee of the OECD
DDA	Doha Development Agenda
EFNA	Emergency Food Needs Assessment
EFSA	Emergency Food Security Assessment
ENA	Emergency Needs Assessment
ERC	Emergency Relief Coordinator
ESA	Agricultural and Development Economics Division (FAO)
EU	European Union
FAC	Food Aid Convention
FEWSNET	Famine Early Warning System Network
FFW	Food for work
FIAN	Foodfirst Information and Action Network
FIVIMS	Food Insecurity and Vulnerability Information and Mapping System
FSAU	Food Security Analysis Unit
GIEWS	Global Information and Early Warning System
GHD	Good Humanitarian Donorship
IEFR	International Emergency Food Reserve
IFPRI	International Food Policy Research Institute

IFRC	International Federation of Red Cross and Red Crescent Societies
IGA	International Grains Arrangement
IPC	Integrated Humanitarian and Food Security Phase Classification
LDC	Least-developed country
LIFDC	Low-income food-deficit country
NAF	Needs Analysis Framework of CAP
NGO	non-governmental organization
ODA	official development assistance
ODI	Overseas Development Institute
OECD	Organisation for Economic Co-operation and Development
SENAC	Strengthening Emergency Needs Assessment Capacity
SIFSIA	Sudan Institutional Capacity Programme: Food Security Information for Action
SMART	Standardized Monitoring and Assessment of Relief and Transitions
SPLM	Sudan People's Liberation Movement
UMR	Usual Marketing Requirement
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
UN RC/HC	UN Resident Coordinator & Humanitarian Coordinator
UNICEF	United Nations Children's Fund
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WFP	World Food Programme
WHO	World Health Organization
WTO	World Trade Organization

Explanatory note

The statistical information in this issue of *The State of Food and Agriculture* has been prepared from information available to FAO up to October 2006.

Symbols

The following symbols are used:

– = none or negligible (in tables)
... = not available (in tables)
$ = US dollars

Dates and units

The following forms are used to denote years or groups of years:

2003/04 = a crop, marketing or fiscal year running from one calendar year to the next
2003–04 = the average for the two calendar years

Unless otherwise indicated, the metric system is used in this publication.
"Billion" = 1 000 million.

Statistics

Figures in statistical tables may not add up because of rounding. Annual changes and rates of change have been calculated from unrounded figures.

Production indices

The FAO indices of agricultural production show the relative level of the aggregate volume of agricultural production for each year in comparison with the base period 1989–91. They are based on the sum of price-weighted quantities of different agricultural commodities after the quantities used as seed and feed (similarly weighted) have been deducted. The resulting aggregate therefore represents disposable production for any use except seed and feed.

All the indices, whether at the country, regional or world level, are calculated by the Laspeyres formula. Production quantities of each commodity are weighted by 1989–91 average international commodity prices and summed for each year. To obtain the index, the aggregate for a given year is divided by the average aggregate for the base period 1989–91.

Trade indices

The indices of trade in agricultural products are also based on the base period 1989–91. They include all the commodities and countries shown in the *FAO Trade Yearbook*. Indices of total food products include those edible products generally classified as "food".

All indices represent changes in current values of exports (free on board [f.o.b.]), and imports (cost, insurance, freight [c.i.f.]), expressed in US dollars. When countries report imports valued at f.o.b., these are adjusted to approximate c.i.f. values.

Volumes and unit value indices represent the changes in the price-weighted sum of quantities and of the quantity-weighted unit values of products traded between countries. The weights are, respectively, the price and quantity averages of 1989–91 which is the base reference period used for all the index number series currently computed by FAO. The Laspeyres formula is used to construct the index numbers.

Part I

FOOD AID FOR FOOD SECURITY?


Part I

1. Introduction and overview

Food aid is one of the oldest forms of foreign aid and one of the most controversial. Food aid has been credited with saving millions of lives and improving the lives of many more, but it was also a serious obstacle in the Doha Round of multilateral trade negotiations. Nothing seems more obvious than the need to give food to hungry people, and yet this apparently benevolent response is far more complicated than it seems. Does food aid do more harm than good? This issue of *The State of Food and Agriculture* seeks to understand the challenges and opportunities associated with food aid, particularly in crisis situations, and the ways in which it can – and cannot – support sustainable improvements in food security.

Questions about food aid's potential to depress commodity prices and erode long-term agricultural development in recipient countries were first raised by T.W. Shultz (1960). Since then, some development specialists have worried that food aid can destabilize local markets, create disincentives for producers and traders and undermine the resilience of food economies.

The possibility that food aid may create "dependency" on the part of recipients is a long-standing concern of policy-makers in the donor community as well as in recipient countries. The concern is that food aid, like other forms of external aid, has the potential to influence the incentives of recipients such that short-term benefits erode longer-term strategies for sustainable food security.

It has also been argued that food aid may make recipient governments dependent on foreign resources, enabling them to postpone needed reforms or to abdicate responsibility for the food security of their people. Like any other external resource, food aid may be captured by local elites who – through incompetence, corruption or malevolence – fail to channel it to the intended beneficiaries.

Food aid has been criticized as a wasteful means of transferring resources to needy people, not least because almost one-third of all food aid resources are captured by domestic food processors, shipping firms and other intermediaries in the donor countries (OECD, 2006). Such findings reinforce the widely held view of food aid as a donor-driven response, designed more to subsidize domestic interests in the donor country than to help the poor abroad.

Some critics even say that commodity food aid should be banned, except in clearly defined emergencies where it serves a legitimate humanitarian function (International Relations Center, 2005). Even in the case of emergency response, food aid policy is criticized as being inflexible and unresponsive to the particular contexts in which it is deployed. Emergency needs assessment is dominated by "food aid needs assessment", which presupposes that food aid is the appropriate response mechanism, often resulting in interventions that are too narrowly focused.

On the other hand, supporters believe that food aid is a uniquely effective mechanism for addressing both acute humanitarian needs and longer-term food security objectives such as mother and child nutrition, school attendance (particularly by girls), health interventions in households affected by HIV/AIDS and public works aimed at

building basic productive infrastructure (WFP, 2004). They advocate the use of food aid in response to food crises as well as to combat chronic hunger among targeted populations and to promote economic and market development in poor countries.

Some humanitarian workers believe that food aid is less likely to be misappropriated than cash because it is less fungible. Furthermore, within households, it is believed that women are more likely to retain control of food aid resources than cash, and are also more likely to channel the aid to the most vulnerable family members (Emergency Nutrition Network, 2004).

Researchers worry that food aid is an "additional resource", and that were food aid to be curtailed, donors would not replace commodities with an equivalent amount of cash; thus, eliminating food aid would reduce the overall amount of foreign aid. While acknowledging the need to discipline the misuse of food aid, they warn against excessive restrictions because even badly managed food aid saves lives (Young, 2005).

Supporters say that food aid management has improved dramatically in recent years and they are actively pursuing further improvements in procurement, distribution and monitoring to minimize the unintended negative consequences of food aid. But critics doubt whether any amount of planning can prevent the pervasive market disruptions associated with large food aid transactions.

Food aid and food security

About 850 million people in the world are undernourished, a number that has hardly changed from the 1990–1992 figures on which the World Food Summit and Millennium Development Goal commitments to halving hunger by 2015 were based. Lack of progress in reducing hunger and the growing number, complexity and duration of food security crises over the past few years have raised concern throughout the international aid system about the scope and nature of aid responses to food insecurity.

The total volume of food aid varies from year to year but has averaged about 10 million tonnes (grain equivalent) per year recently. This is equivalent to about 2 percent of world grain trade and less than 0.5 percent of world grain production. Food aid distributed by the World Food Programme (WFP) reaches about 100 million people at some point each year, and bilateral donors probably reach about another 100 million people. If all of the food aid in the world were distributed evenly among these recipients, it would provide only about 50 kilograms of grain per person per year. If this food aid were divided among the 850 million undernourished people in the world, it would provide less than 12 kilograms per person. Clearly, food aid is far too small to provide food security for all of the people in need.

Food aid is not distributed evenly among all vulnerable people. The relatively small volume of food aid available globally can be of major significance for certain countries in certain years. For example, in 2001–2003, food aid accounted for 22 percent of the total food supply, measured in caloric terms, of the Democratic People's Republic of Korea. For Eritrea, this figure was 46 percent.

While these are extreme examples, 19 other countries relied on food aid for at least 5 percent of their total food supply during this period. A decade earlier, in 1990–1992, the volume of global food aid was larger and more countries received a significant share of their total food supply in the form of food aid: 38 countries received more than 5 percent, and of these 10 countries received at least 20 percent (FAO, 2006a). Food aid is central to the immediate food security of many countries, but it is less clear how food aid in such volumes may influence longer-term strategies for food security.

Food aid in crisis contexts

A growing share of all food aid is provided to people suffering food crises. Emergency food aid now accounts for one-half to two-thirds of all food aid. As of October 2006, 39 countries faced food crises requiring emergency assistance (Figure 1) (FAO, 2006b). Over the past two decades, the number of food emergencies has risen from an average of 15 per year in the 1980s to more than 30 per year since 2000. Much of the increase has occurred in Africa, where the average number of annual food emergencies has tripled (FAO, 2004a).

As shown in Figure 1, food crises are rarely the result of an absolute shortfall in the availability of food; rather, widespread lack of access to food is more common.

Human actions are often an underlying cause or trigger for food crises, either directly (through wars and civil conflict) or indirectly through their interaction with natural hazards that would otherwise have been of minor importance. Of the 39 countries facing food crises in mid-2006, 25 were caused primarily by conflict and its aftermath, or a combination of conflict and natural hazards. The HIV/AIDS pandemic, itself a product of human and natural hazard interactions, is also frequently cited as a major contributory factor to food crises, especially in Africa (FAO, 2006b).

Human factors are particularly culpable in protracted crises. Approximately 50 million people worldwide live in an area marked by a protracted crisis that has lasted for five years or more. Ethiopia, Somalia and the Sudan, for example, have each been in a state of protracted crisis for over 15 years (FAO, 2004a). Providing humanitarian support for people living in such conditions is enormously difficult and fraught with ethical dilemmas.

While there is little controversy about the need to provide food aid and other assistance to people caught up in crisis situations, the management of external assistance in such situations is hotly contested. People do agree, however, that if food aid is to improve food security, needy populations must be properly targeted, shipments of appropriate foods must arrive in a timely manner (for as long as needed but no longer) and complementary resources must also be provided.

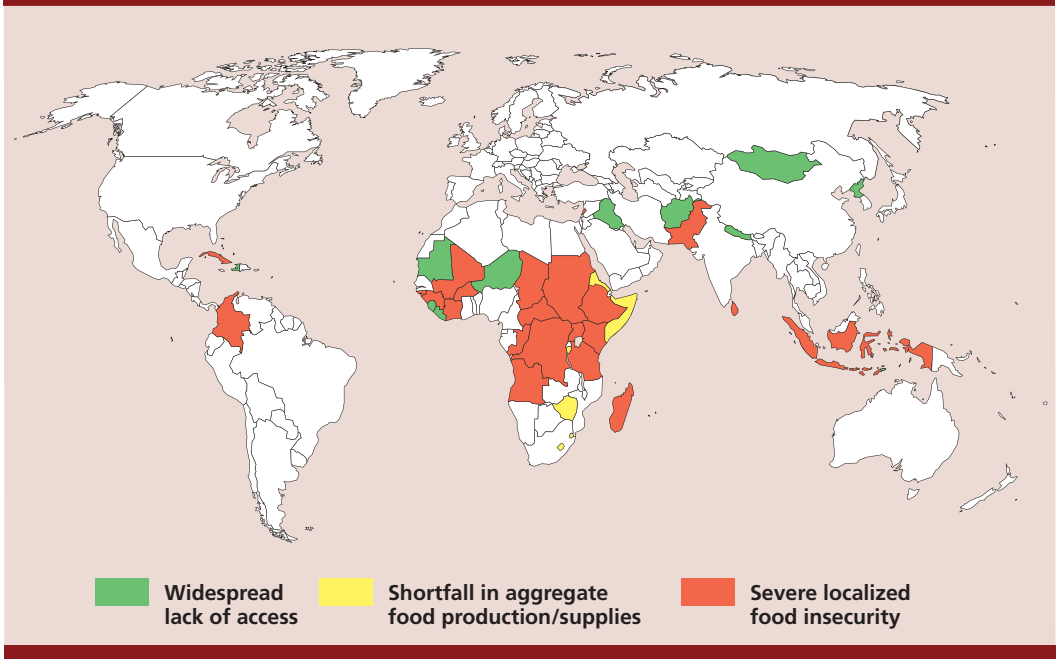
Overview and summary of the report

Food aid programming, governance and social protection

Food aid programming has changed significantly in recent years. Total food aid has declined relative to other aid flows and to the world food economy. Nonetheless, food aid remains very important for certain countries in certain years, sometimes accounting for more than half of the total cereal supply.

Food aid programming has become more responsive to recipient needs and less driven by donors' interests, although many controversial practices continue. Most food aid is now used in emergency situations and is targeted to vulnerable individuals and households. Nevertheless, about one-quarter of all food aid is still sold on recipient-

FIGURE 1
Countries in crisis requiring external assistance, October 2006



Source: FAO, 2006b.

country markets. At the same time, many donors are replacing commodity donations with cash, making it possible to procure more food aid locally or in neighbouring countries. About 15 percent of all food aid was procured in local or regional markets in 2005.

Some economists argue that, despite an increase in cash donations, as much as 60–65 percent of all food aid resources remain "tied" in one way or another. About half of all food aid is directly tied to domestic procurement, processing and shipping requirements in the donor country. Most cash donations are tied to other procurement and distribution requirements that may prevent the implementing agency from using the most efficient channels. Globally, tying requirements are responsible for an estimated 30 percent efficiency loss of all food aid resources (OECD, 2006).

Food aid governance mechanisms have long sought to balance the interests of donors and recipients, while reconciling the multiple objectives associated with food aid: commodity surplus disposal, price support, trade promotion, foreign policy and food security. Never able to reconcile these conflicting goals, food aid governance has kept pace neither with the recent changes in food aid programming nor with current thinking on food security and social protection. Calls for reform of the international food-aid system are increasing even as the demand for humanitarian intervention grows.

This report argues that food aid should be seen in the context of broader concepts and strategies supporting food security and social welfare. Social safety nets include a broad range of measures that aim to provide income or other consumption transfers to the poor and to protect the vulnerable against livelihood risks; food aid can be part of a social safety net aimed at supporting food security, but it is not always the most appropriate tool.

Understanding the proper role of food aid within a social safety net requires an understanding of the nature of food security and how it may be compromised. Food security can be said to exist when all people have access at all times to sufficient, nutritionally adequate and safe food, without undue risk of losing such access. This definition has four dimensions: availability, access, utilization and stability.

The availability of food in a country – from domestic production, commercial imports or food aid – is a necessary condition for food security, but it is not sufficient. People must also have access to food from their own production, purchases on local markets or transfers through social safety nets either of food itself or the means to acquire it. Utilization refers to an individual's ability to absorb the nutrients in food, and thus highlights the importance of non-food inputs to food security such as access to clean water, sanitation and health care. Stability underscores the dynamic nature of food security. Food insecurity may be manifest on a chronic basis, usually reflecting severe underlying poverty or situations recognized as "crises".

Whether food aid is appropriate in a given situation depends on which aspect of food security has been compromised and why. Where food is available and markets work reasonably well, food aid may not be the best intervention. Cash or vouchers may be more effective, more economically efficient and less damaging to local food systems.

Food aid is often essential in emergency situations but, even in these cases, four elements need to be considered when designing and implementing appropriate interventions: i) how the crisis affects the different dimensions of food insecurity over time; ii) the economic, social and political context of the crisis; iii) the nature, magnitude and extent of the crisis itself and how this affects the ability of local governments and institutions to respond; and iv) how short-term interventions may affect long-term food security.

Displacement, disincentives and dependency

The risk that food aid can displace commercial exports was recognized from the beginning of the modern food-aid era, in the years immediately following the Second World War. Concerns about the risk of food aid creating disincentives for domestic agricultural production and market development were raised. Development specialists have long worried that food aid

might create "dependency" on the part of recipients and governments.

Dependency occurs if the expectation of receiving food aid creates perverse incentives that cause people to take on excessive risk or to engage in self-defeating behaviour in order to receive aid. The empirical evidence shows that food aid flows are generally too unpredictable and small to create such dependency. Beyond a few isolated incidents, there is no established evidence that dependency is a widespread problem. Yet people ought to be able to depend on appropriate safety nets when they cannot meet their food needs on their own, both because food is a fundamental human right and because it can be an essential part of a broader strategy for hunger reduction and poverty alleviation.

Basic economic theory suggests that food aid can displace commercial trade. The empirical evidence on this point is surprisingly thin, however. Food aid can displace contemporaneous commercial imports by about one-third of the amount of aid. The literature suggests that the trade-displacing effect is short-lived; commercial imports recover quickly and may actually grow in the years following food aid flows.

The empirical record on the risk of food aid creating disincentives for local agricultural development is rather mixed. The evidence shows that large food-aid deliveries clearly depress and destabilize domestic prices in recipient countries, potentially threatening the livelihoods of domestic producers and traders and undermining the resilience of the local food systems. Given that most people, including the rural poor, depend on markets for their food security, this could have serious long-term consequences.

Whether these price effects create long-term disincentives for domestic production is less clear. Several studies have found a negative relationship between food aid flows and domestic production, especially in earlier decades when most food aid was untargeted (Lappe and Collins, 1977; Jean-Baptiste, 1979; Jackson and Eade, 1982). More recent work suggests that these studies may have had the direction of causality reversed. Because food aid tends to flow to communities that are already suffering from severe chronic poverty and recurrent disasters, food aid is correlated with low productivity – but it does not necessarily *cause* low productivity. Indeed, more recent studies find that any production disincentive effects may be quite small and would appear to be temporary (Maxwell, 1991; Barrett, Mohapatra and Snyder, 1999; Arndt and Tarp, 2001; Lowder, 2004).

Although measurable production effects are small, the empirical evidence suggests that commodity food aid can disrupt local markets and undermine the resilience of local food systems. Instead, where sufficient food is available in an area and markets work reasonably well, cash-based transfers or food vouchers can stimulate local production, strengthen local food systems and empower recipients in ways that traditional food aid cannot. Food aid is most likely to be harmful when: (i) it arrives or is purchased at the wrong time; (ii) it is not well targeted to the most food-insecure households; or (iii) the local market is poorly integrated with broader markets.

Food aid in emergency response

Food aid is clearly a valuable tool for ensuring the basic nutritional needs of people affected by humanitarian crises – earthquakes, hurricanes, droughts, wars, etc. – and has been credited with saving millions of lives over the past century. Equally important, the timely delivery of food aid to acutely food-insecure people can relieve the pressure they face to sell scarce productive assets, enabling them to resume their normal livelihoods as soon as the crisis passes.

Nevertheless, emergency response tends to suffer from a number of common problems. Food aid is usually the most readily available resource in crisis situations – donors know how to give it and agencies know how to deliver it – so it becomes the default response. While food aid is often essential, it is not always necessary and it is never sufficient to deal with the myriad needs of people affected by crises.

What is more, emergency food aid is a relatively expensive and slow intervention, especially if it is sourced in a donor country. Experience shows that timely deliveries of appropriate resources can enable people to manage shocks and avoid slipping into severe food insecurity. Early appeals for assistance are routinely ignored, however, so manageable shocks too often become full-scale crises requiring massive intervention

with incalculable human costs. Emergency measures commonly fail to appreciate the extent to which people rely on markets for their livelihoods and food security. Interventions aimed at rebuilding market infrastructure and restoring trade links can often achieve lasting improvements in food security without the need for massive food-aid shipments.

When crises occur repeatedly against a backdrop of chronic hunger, donors and recipients can find themselves caught in a "relief trap", in which development-oriented strategies are neglected. The longer and more complex an emergency becomes, the more difficult it is to respond with the right resources at the right time, and so the challenges of timing and targeting (so important in all food aid transactions) become even more intractable. Donors and agencies should consider a broader and more flexible range of interventions, beginning with better information and analysis to identify the real priority needs of affected populations.

Food aid may be part of the appropriate response when insufficient food is available in a region, many households lack access to sufficient food and markets are not functioning properly. But food aid is often used inappropriately for a variety of reasons: (i) food aid is the most readily available resource; (ii) inadequate information and analysis fail to identify the real needs of affected populations; and (iii) implementing agencies fail to appreciate the complex livelihood strategies of vulnerable households, particularly the extent to which they rely on markets for food security. In many cases, emergency food-aid interventions are used to address chronic food insecurity and poverty, challenges that can be met effectively only with a broader development strategy.

Policy gaps in protracted and complex emergencies

The number and scale of complex and protracted crises have risen sharply over the past decade, especially in sub-Saharan Africa. The growing prevalence of protracted crises has created particular problems for the international humanitarian community, because resources for addressing emergencies tend to wane after a short period. Food security interventions in protracted crises have tended to reflect a narrow range of standardized, supply-driven policy responses, with a bias towards short-term projects dominated by provision of food aid and agricultural inputs.

This policy failure partly stems from inadequacies in systems for generating up-to-date information and knowledge about the complex crises. It also arises from a lack of capacity to produce timely, context-specific policy responses using the considerable amount of information and knowledge available. This in turn reflects an aid system divided between agencies that focus on humanitarian emergencies and others that focus on development.

Because the humanitarian agencies command the greatest aid resources for protracted food security crises, traditional responses – food aid in particular – tend to dominate. In each crisis, the strengthening of food systems should be based on an analysis of the dynamics of food security resilience and vulnerability. The analysis should also address the causal factors in the evolution of the crisis.

Main messages from *SOFA 2006*

- Food aid should be seen as one of many options within a broader range of social protection measures to assure access to food and to help households manage risk. Whether to provide food directly instead of cash or food vouchers depends largely on the availability of food and the functioning nature of markets. Where adequate food is available through markets that remain accessible to crisis-affected people, food aid may not be the most appropriate resource.
- The economic effects of food aid are complex and multilayered, and solid empirical evidence is surprisingly limited. The existing empirical evidence does not support the view that food aid creates negative "dependency", because food aid flows are too unpredictable and too small to alter recipients' behaviour routinely or substantially. Concerns over dependency should not be used to deprive needy people of required assistance. Indeed, people ought to be able to depend on appropriate social safety nets.

- Food aid can depress and destabilize market prices in recipient countries. Food aid that arrives at the wrong time or is poorly targeted is especially likely to destabilize local prices and undermine the livelihoods of local producers and traders upon whom sustainable food security depends.
- Food aid tends to displace commercial exports in the short run, although under certain conditions it may have a stimulating effect in the longer term. The impacts of food aid on commercial trade differ by programme type and affect alternative suppliers differently. Well-targeted food aid can minimize the displacement effect on commercial trade.
- Emergency food aid and other social safety nets are essential to prevent transitory shocks from driving people into chronic destitution and hunger, but by themselves they cannot overcome the underlying social and economic causes of poverty and hunger. This challenge can only be effectively addressed as part of a broader development strategy. Donors should avoid falling into a "relief trap" in which so many resources are devoted to emergencies that longer-term needs are neglected.
- A policy gap between food aid and food security exists on many levels. Bridging this gap requires: (i) improving food security analysis to ensure that responses are needs-based, strategic and timely; (ii) incorporating needs assessment as part of a process linked to monitoring and evaluation, rather than a one-off event driven by resource requirements; and (iii) supporting national and regional institutions to make food security a primary policy concern, reinforced by interventions at the global level focused on reforms to the international food aid and humanitarian systems.
- Reforms to the international food aid system are necessary but they should be undertaken giving due consideration to the needs of those whose lives are at risk. Much of the debate on food aid is based on surprisingly weak empirical evidence; nevertheless, it is known that the consequences of food aid are closely linked to timing and targeting.

A few basic reforms could improve the effectiveness and efficiency of food aid while addressing legitimate concerns regarding the risk of causing adverse consequences. Desirable reforms include:

- *Eliminate untargeted forms of food aid*. Food aid that is sold on recipient country markets is likely to displace commercial imports or distort local markets and production incentives, with long-term negative impacts on food security. In practical terms, this means eliminating programme food aid and the monetization of project aid.
- *Untie food aid from domestic procurement, processing and shipping requirements*. About one-third of global food-aid resources are wasted due to such requirements. Many donors have untied food aid from domestic procurement requirements; others should consider doing so as well.
- *Use in-kind commodity food aid only where food insecurity is caused by a shortage of food*. Where food is available but vulnerable groups lack access to it, targeted cash assistance or food vouchers will be more effective and efficient in meeting their food needs without undermining local markets. Interventions that improve the functioning of markets (repairing roads, for example) may be more effective in supporting sustainable food security than direct, food-based interventions.
- *Use local and regional food-aid procurement where appropriate, but do not replace domestic tying with local and regional tying*. Such interventions may result in inflated food prices paid by poor consumers and may create unsustainable market incentives for food producers and traders. This point reinforces the need for careful monitoring of the impact of all food aid interventions.
- *Improve information systems, needs analysis and monitoring*. These reforms will ensure that appropriate and timely interventions are made and that negative consequences are minimized.

2. Framing the debate

Modern food aid began in the years following the Second World War as a way of disposing of surplus commodities while stimulating demand in poor countries where hunger was widespread. In these early years, food aid was meant to accomplish multiple goals for the donors – surplus disposal, farm price support, export market development and foreign policy objectives – while promoting food security in recipient countries.

International food-aid governance mechanisms have long sought to reconcile these multiple aims, with limited success. As the understanding of food security has deepened, food aid has come under increasing scrutiny. Food aid practices have improved substantially over the decades, driven primarily by changes in trade and farm policy in donor countries, but also by a more nuanced understanding of food security. Despite the progress that has been made, however, many controversial food-aid practices continue.

This chapter reviews the evolution of food aid practices and governance over recent decades, and discusses how the changing conceptualization of food security and social protection is changing the way food aid is perceived. This background material is meant to frame the debates that will be explored in more depth in following chapters.

Food aid programming[1]

Food aid programming is extremely complex, with many different donors and agencies involved in implementing a wide range of interventions. The effectiveness and efficiency of food aid in supporting food security objectives and its potential for unintended adverse consequences depend crucially on how it is managed. This section outlines how food aid has evolved in recent decades.

Trends in total food aid

Since 1970, the earliest date for which comprehensive data are available, food aid has fluctuated between 6 and 17 million tonnes per year (Figure 2). In nominal terms, this has been equivalent to about US$750 million to US$2.5 billion.[2] In recent years, total food aid has averaged about 10 million tonnes (worth about US$2 billion) per year. Cereals account for the largest and most variable component of total food aid.

By a number of measures, food aid has declined in importance over the past few decades. Food aid has fallen from about 20 percent of total bilateral official development assistance (ODA) in the 1960s to less than 5 percent today (Barrett and Maxwell, 2006). Food aid has declined as a share of world cereals trade, from 10 percent in the 1970s to less than 3 percent in recent years, although it still makes up about 5 to 10 percent of the net food imports of all the countries receiving such aid. Cereal food aid typically averages less than 0.5 percent of total cereal production in the world, but it can be very important relative to domestic production for individual recipient countries.

The fluctuating volume of total food aid historically has shown an inverse relationship with commodity prices. Food aid volumes fell by half between 1970 and 1974, a period when world cereal prices almost trebled. In the mid-1990s, agricultural policy reforms in several major cereal-producing countries led to sharp reductions in surplus stocks, which, together with short harvests in 1996, led to a spike in world cereal prices and another precipitous drop in food aid shipments.

The inverse relationship between food aid volumes and cereal prices reflects the historical origins of food aid as a tool for surplus disposal and the budgetary process

[1] This section is based on Lowder and Raney's working paper (FAO, 2005a).

[2] Food aid values are calculated on the basis of global annual cereal export unit values.

BOX 1
Defining food aid

The first efforts to define food aid date from 1954 and the creation of the FAO Consultative Sub-Committee on Surplus Disposal (CSSD). Because conceptual difficulties prevented the group from agreeing on a definition of food aid, the CSSD instead established a list of transactions – the *Catalogue of Transactions*, later the *Register of Transactions* – that would be considered food aid.

The definition used in this report emphasizes the international nature of food aid and is consistent with the data reported by the World Food Programme: "*Food aid is the international sourcing of concessional resources in the form of or for the provision of food*" (Barrett and Maxwell, 2005). This definition limits food aid to international assistance in the form of food, or for the procurement of food. It includes food sourced in the donating country – often called "in-kind", "direct" or "tied" aid – as well as cash resources used for the purchase of food on local, regional or international markets. It includes food provided to recipient governments or other implementing organizations, in grant form or on concessional terms, and whether it is "targeted" to needy households or resold on the domestic market. It does *not* include all types of assistance that may affect food security, nor does it include national food security programmes based on domestic resources.

While defining food aid might seem like an easy task, even food aid experts struggle to agree. At a meeting in Berlin in 2003, experts developed (but by no means as the result of a consensus) the following expansive definition: "*… food aid can be understood as all food supported interventions aimed at improving the food security of poor people in the short and long term, whether funded via international, national public and [sic] private resources*" (von Braun, 2003). The Berlin definition includes all international and domestic actions and distributions of food, as well as non-food resources used in combination with food for food security purposes. As such, the Berlin definition of food aid is more similar to the generally recognized definition of "food-based interventions". These include food distribution, market intervention or financial transfers that are funded nationally or internationally and which are intended to improve food security (Clay, 2005).

in the United States of America, the major food aid donor. Econometric evidence from the early years of international food aid confirmed the role of commodity prices and stocks as the key determinants of food-aid donations from three of the five major donors at the time. The same study revealed that global food aid donations were only slightly influenced by production shortfalls in recipient regions (Konandreas, 1987), validating the view of food aid as a donor-driven resource.

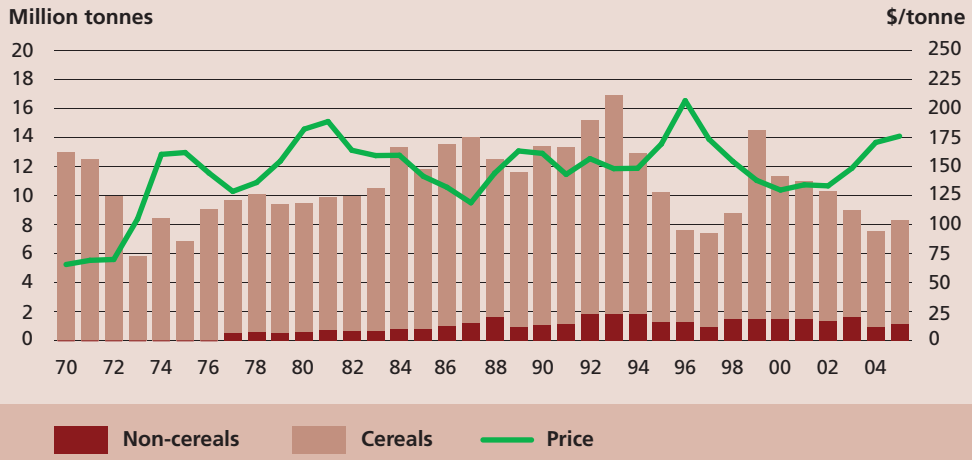
Changes in the agricultural policies of most major donors since the mid-1990s have meant that government-held commodity stocks are no longer direct determinants of food aid flows. The inverse relationship between cereal prices and food aid flows continues, however, because food aid budgets are set on an annual basis in fixed monetary terms. A fixed budget buys less food aid when prices are high and, because budget allocations cannot normally be carried over from year to year, the result is an inverse relationship between food aid volumes and prices. This relationship provides powerful support for critics who argue that food aid disappears precisely when it is needed most.

Many countries, international organizations, private charities and businesses donate food aid but, as noted above, the majority is provided by the United States (Figure 3). Since 1970 the United States has contributed an average of 6 million tonnes of cereal food aid annually

and has been the source of 50 to 60 percent of total cereal food aid (WFP, 2006). It funds 50 percent of WFP food-aid operations, and that organization is typically responsible for 40 to 50 percent of global food aid (WFP, 2005a).

Sub-Saharan Africa and Asia receive the majority of cereal food aid in typical years (Figure 4). Eastern Europe and the Commonwealth of Independent States received large but quite variable cereal food aid shipments in the decade following the break-up of the Soviet Union. The share of total cereal food aid distributed in Latin America and the Caribbean has declined from nearly 20 percent in the late 1980s to 5 percent in more recent years. Shipments to the Near East and North Africa have also

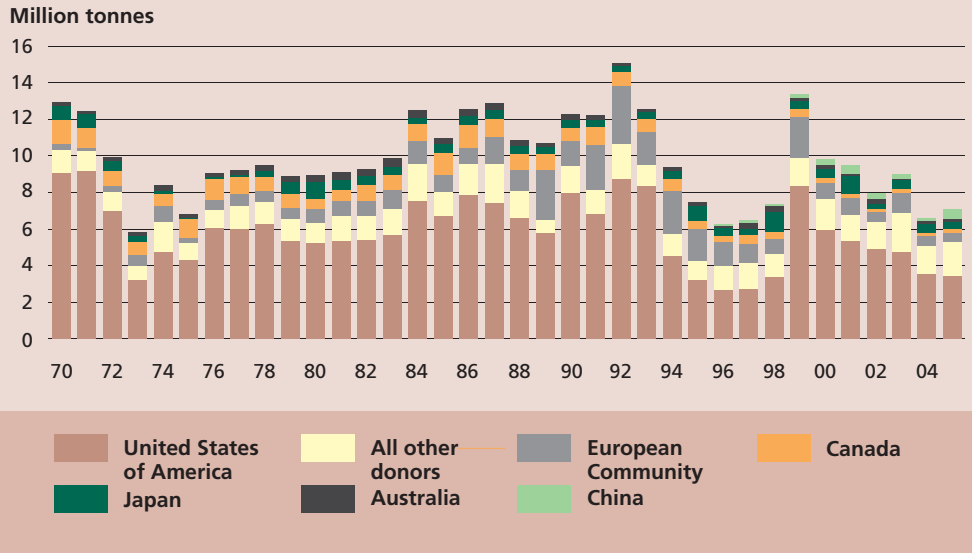
FIGURE 2
Total food aid shipments and cereal prices, 1970–2005



Note: Prices represent annual export unit values for cereals, US$/tonne. Data for 2005 are provisional.

Source: FAO 2006c.

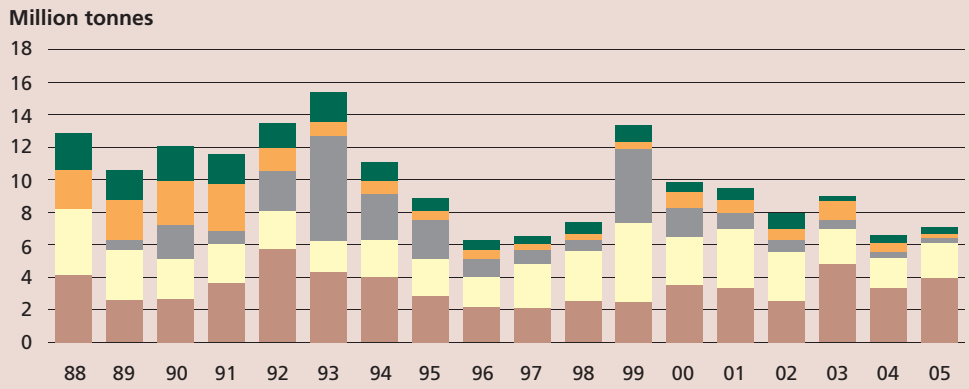
FIGURE 3
Levels of cereal food aid shipments by donor, 1970–2005

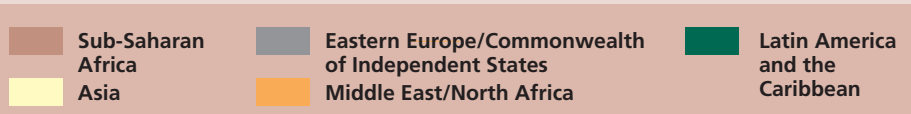


Note: Data for 2005 are provisional.

Source: FAOSTAT (data from 1970 through 1995) and WFP INTERFAIS (data from 1996 onwards).

FIGURE 4
Cereal food aid receipts by recipient region, 1988–2005





Note: Data for 2005 are provisional. Regional designations are by WFP. *Source:* WFP, 2006.

declined from a peak of about 20 percent in the late 1980s to 10 percent in more recent years, with the exception of an atypical peak flow to the region in 2003.

Although food aid is relatively small in terms of the global food economy, it provides a significant share of the total food supply for individual countries in certain years. During the 1992/93 drought in Mozambique, for example, food aid in the form of yellow maize supplied about 60 percent of total cereal availability in the country, and it continued to represent 20 to 35 percent of cereal supplies throughout the first half of the 1990s (Tschirley, Donovan and Weber, 1996). Figure 5 shows the ten leading recipients of food aid over the five-year period from 2001 to 2005. The Democratic People's Republic of Korea, the biggest recipient in recent years, receives more than 1.1 million tonnes of grain equivalents per year on average. Ethiopia receives almost as much on average, but the amounts vary significantly from year to year. Over the last ten years, food aid to Ethiopia has averaged 13 percent of the country's total cereal production, reaching 23 percent in 2003. In the Democratic People's Republic of Korea, food aid equaled 31 percent of total cereal production in 2002 and 22 percent in 2003.

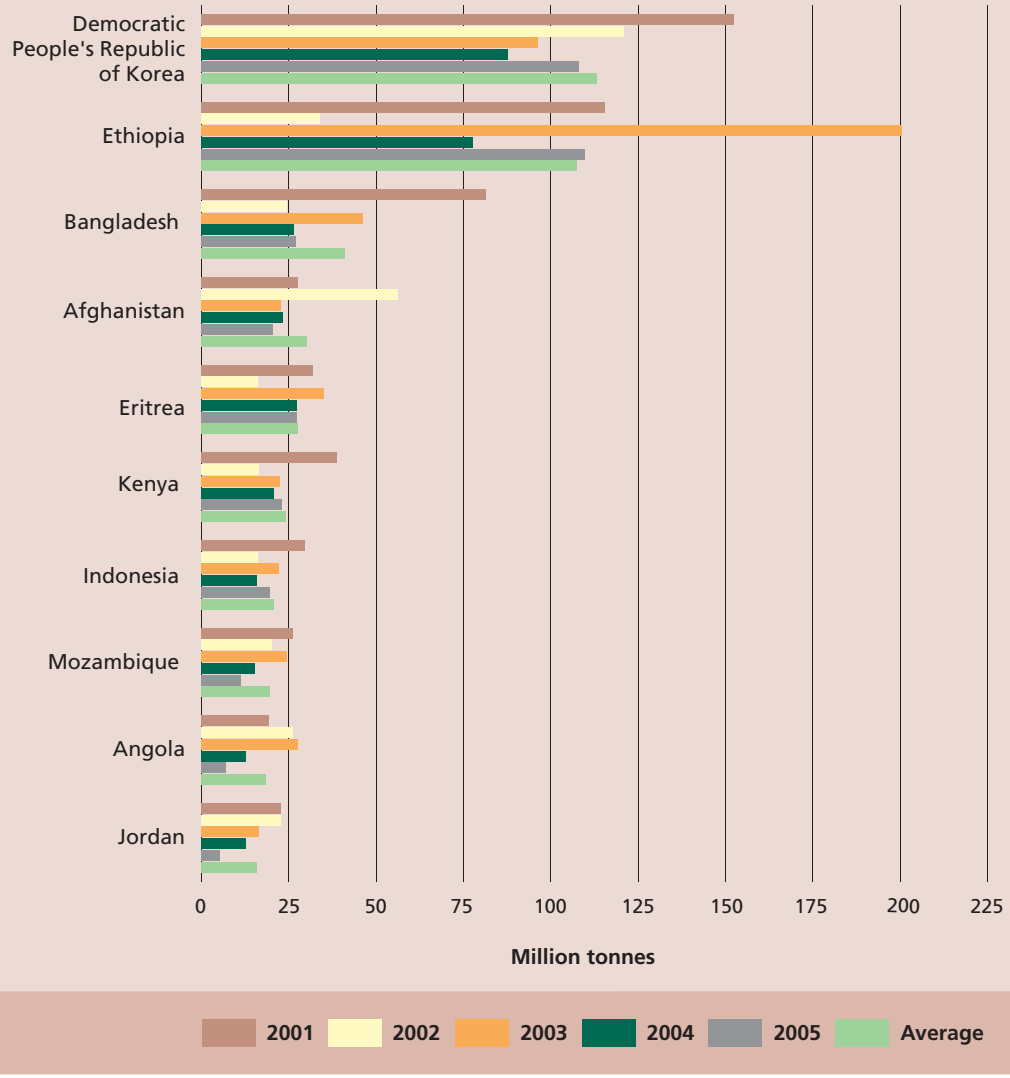
Food aid management

Food aid is often categorized according to the way donors provide it to recipient countries, that is, through programme, project or emergency operations. Figure 6 shows the breakdown of cereal food aid deliveries by category from 1978 to 2005.

A key difference among the three categories of food aid relates to targeting: the effort to get food aid into the hands of the hungry poor. When food aid is well targeted, it reaches the people who need it and only the people who need it. More formally, proper targeting ensures that there are minimal errors of inclusion and exclusion. Errors of inclusion occur when food aid is provided to people who would have otherwise purchased it using their own resources without unnecessarily depleting their assets. Inclusion errors increase the likelihood of food aid adversely affecting local producers and traders. Errors of exclusion occur when food-insecure people do not receive the food aid they need (Gebremedhin and Swinton, 2001).

Programme food aid is transferred bilaterally on a government-to-government basis. About half of all programme aid is donated in fully grant form and about half is sold to the recipient government at concessional prices or credit terms, i.e.

FIGURE 5
Leading recipients of cereal food aid, 2001–2005



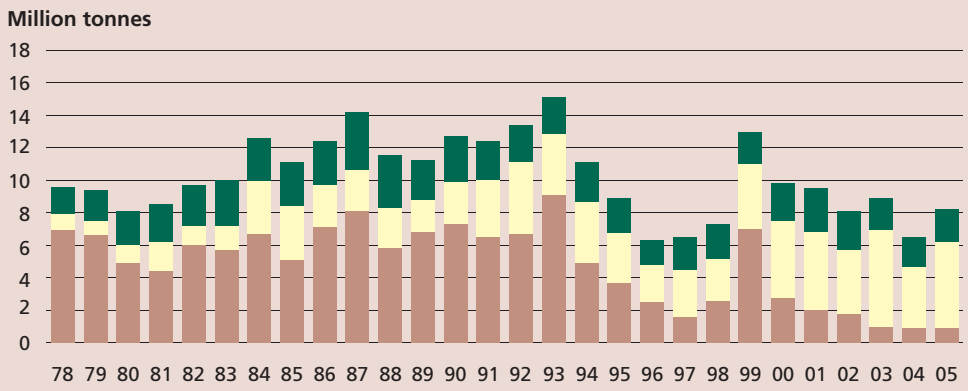
Note: Data for 2005 are provisional.

Source: WFP, 2006.

greater than zero but less than market rates. Programme food aid is resold by the recipient government on the local market, and therefore is not targeted. As such, programme food aid is associated with significant errors of inclusion. It increases the overall availability of food but otherwise does not directly affect food security (Clay and Benson, 1990). Until the mid-1980s, more than half of all food aid was of this type, but it now accounts for less than 20 percent of the total.

Project food aid may be transferred bilaterally or through multilateral channels, and the government of the recipient country may or may not be involved in the transaction. Project food aid is usually – but not always – targeted to specific beneficiaries. It may be provided freely or in exchange for work or on other conditions, and is often associated with activities intended to promote agricultural or broader economic development as well as food security. Examples of project food aid include food for work, school feeding and mother-and-child nutrition centres. These activities are typically run by WFP or non-governmental organizations (NGOs), and are associated with several targeting approaches, including self-targeting, discussed below.

FIGURE 6
Cereal food aid by category, 1978–2005



Note: Data for 2005 are provisional.

Source: WFP, 2006.

Sometimes project food aid is sold on recipient country markets to generate cash for relief and development programmes. This practice is known as "monetization". Monetization is used by NGOs implementing project aid mainly from the United States. In the late 1980s, only about 10 percent of all project food aid was monetized, but this has increased to more than 30 percent in recent years (WFP, 2006). Monetized project aid is similar to programme aid in that it is not targeted to specific food-insecure populations.

Emergency food aid is targeted to food-insecure populations in times of crisis. In some cases, the distinction between emergency and project food aid is blurred. For example, in Ethiopia, emergency food aid is sometimes distributed through food-for-work programmes. Emergency aid has increased steadily and now accounts for about two-thirds of total food aid.

The decline in programme food aid is largely the result of shrinking cereal stocks in donating countries as a result of trade liberalization and domestic agricultural policy reforms. The need for programme aid has also declined, especially in many Asian countries where chronic food deficits no longer occur. Concerns over market distortions resulting from programme and project aid, and an increased incidence and awareness of emergencies have also played a part in increasing the share of food aid devoted to emergency response (Russo *et al.*, 2005).

Like other forms of foreign aid, food aid is often tied to the procurement of goods and services in the donating country. Almost all food aid donated by the United States is tied to domestic procurement, processing and shipping requirements, and many other donors have similar tying requirements. Some donors have stopped donating food aid in the form of commodities, providing cash instead, so as much as 15 to 25 percent of all food aid is now purchased in the country or region where it is needed (WFP, 2006). Such transactions are generally referred to as "untied", although donors may stipulate where purchases are to be made, thus reducing the overall flexibility of the procuring agency and raising costs (Box 2).

Food aid governance[3]

Concerns about the risk of food aid disrupting commercial exports and domestic markets were recognized from the beginning of the modern food-aid era, and early food-aid governance mechanisms were shaped

[3] This section is based on Konandreas (2005) and FAO (2005b and 2005c).

BOX 2
Lost efficiency due to tied food aid

Tying food aid to domestic procurement is a controversial practice that imposes significant efficiency costs on aid transactions. Most tied food aid consists of direct transfers from donor to recipient country, but triangular (procurement of food in third countries) or local purchases of food might also represent a form of aid tying. In these cases the procuring agency may be prevented from using the most efficient or appropriate sources of supply.

Some countries, notably the United States, have legislation or regulations governing food aid operations that require procurement largely within the donor country. The United States also has further legislative requirements that 50 percent of commodities should be processed and packed (value added) before shipment, and that 75 percent of the food aid managed by USAID and 50 percent of that managed by USDA be transported in "flag-carrying" vessels registered in the United States. Barrett and Maxwell (2005) estimate that, as a result of various tying requirements, approximately half of the total United States food aid budget is captured by domestic processing and shipping firms (American farmers generally do not benefit because food aid is too small to influence domestic prices).

OECD (2006) estimates that 60–65 percent of all food aid is tied in some way. They calculate that the global inefficiency cost of providing tied food aid instead of financing commercial imports is at least 30 percent. The cost of direct food-aid transfers from the donor country was on average approximately 50 percent more than local food purchases, and 33 percent more than regional purchases. These are conservative estimates, as they are based on the maximum price that would have been paid for commercial imports. Furthermore, the considerable transaction costs of organizing food aid deliveries are not reflected in these calculations.

The OECD (2006) study argues that the most efficient form of food aid is likely to be for protracted or continuing relief operations, flexibly sourced within the recipient country or region. Direct food aid is almost always more costly than alternative commercial imports or local and regional purchases. The relative efficiency of local purchases and purchases from third countries also suggests that the benefits of untying would not just flow to middle-income agricultural exporting countries, but could benefit agricultural development in many low-income developing countries.

primarily with those concerns in mind. The first international governance institution for food aid, the FAO Consultative Sub-Committee on Surplus Disposal (CSSD), was established in 1954 to provide a forum for consultation among food-exporting countries aimed at minimizing commercial market disruption.

International governance mechanisms for food aid have evolved since then, but their primary focus remains on minimizing the risk of distorting markets and trade. Less attention has been given to creating effective governance mechanisms to promote and protect the food security objectives of food aid. Although some governance mechanisms acknowledge the need to ensure the availability of adequate levels of food aid, none has food security as its central focus, and none holds donors or agencies accountable to recipients for their actions.

Today, food aid flows are supposed to be reported to four different bodies: the CSSD, the Food Aid Convention (FAC), WFP and the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD). None of these organizations has the capacity or mandate to govern food aid effectively from a food security perspective. Of these, only the FAC is a formal international accord, but it has no mechanism for enforcing compliance of signatories to their commitments.

In addition, the World Trade Organization (WTO) Agreement on Agriculture refers to food aid, but does not as yet contain any binding provisions. Members of the WTO are currently negotiating stricter disciplines on the use of food aid aimed to prevent it from being used to circumvent rules on export subsidies, while also protecting the humanitarian role of food aid in a "safe box". Meanwhile, a number of NGOs are seeking to reform their own food aid operations.

FAO Consultative Sub-Committee on Surplus Disposal

The first discussion of food aid in an international forum was at the Seventh Session of the FAO Conference in November 1953. The Conference discussed the growing difficulties in absorbing surpluses of certain commodities, and concluded that, in accordance with FAO's basic aims, the foremost remedy for the absorption of excess supplies was to be sought in increasing consumption in the developing countries.

Accordingly, the Conference instructed the Committee on Commodity Problems to consider: (i) the most suitable means of disposing of surpluses; (ii) the principles that should be observed in order that the disposal of surpluses would be made without harmful interference with normal patterns of production and international trade; and (iii) the strengthening of intergovernmental machinery for consultations on these matters (FAO, 1953). Underpinning these consultations were a series of analytical studies prepared by the FAO Secretariat that first articulated a number of strategies and concerns regarding the use of food aid (Box 3). These consultations resulted in the adoption of the FAO Principles of Surplus Disposal and Consultative Obligations and the creation of the Consultative Sub-Committee on Surplus Disposal (CSSD) in 1954. Initially, 37 FAO Member Nations agreed to adhere to the principles, a number that had increased to more than 50 by the early 1970s.

The Principles of Surplus Disposal represent a code of conduct for governments in the provision of food aid. In the main, they seek to ensure that food and other agricultural commodities that are exported on concessional terms result in additional consumption for the recipient country and do not displace normal commercial imports, and that domestic production is not discouraged or otherwise adversely affected. While the principles are not a binding instrument, they represent a commitment by signatory countries. They help governments to focus on their responsibilities as parties to transactions on concessional terms and to avoid potential difficulties and disagreements.

The interests of recipient countries are safeguarded, in theory, by the emphasis on increasing consumption rather than restricting supplies. The interests of exporting countries are protected by the undertaking that such disposals should be made without harmful interference with normal patterns of production and international trade; assurances against resale or transshipment of commodities supplied on concessional terms; and the introduction of the concept of "additional consumption", which is defined as consumption that would not have taken place in the absence of the transaction on concessional terms.

The mechanism for assuring such additionality is the Usual Marketing Requirement (UMR), a concept adopted by FAO in 1970. The UMR is a commitment by the recipient country to maintain a normal level of commercial imports of the commodity concerned, in addition to the commodity supplied as food aid. This provision has become a standard element of many food aid agreements (most transactions channeled through WFP and NGOs are exempt from the UMR, as are emergency transactions). The CSSD monitors adherence to the principles by reviewing food aid transactions, in principle prior to signature of the agreement and shipment of the commodity.

Because the FAO principles are voluntary guidelines, many donors have failed to adhere to these reporting requirements in recent years. In 1999, the FAO Secretariat expressed concern over the declining share of food aid transactions reported to the CSSD and the increasing number of transactions that were exempt from formal reporting requirements, trends that reflect: i) the relatively small size of most transactions; and ii) the increased proportion of food aid that is channelled through private voluntary organizations and multilateral agencies, or

BOX 3
Evolution of food aid from surplus disposal to food assistance

In 1954, FAO carried out a major study on surplus disposal that pioneered some creative ways to make appropriate use of food aid to address humanitarian needs in developing countries. This was the first major step in the conceptual evolution of food aid towards its eventual food security role (FAO, 1954). That study had profound implications at both the conceptual and institutional levels. It launched new ideas for utilizing food surpluses in food-for-work projects, for food stabilization purposes, in special feeding programmes for the most vulnerable target groups and in support of government programmes to subsidize consumption.

Closely related in timing and significance was another FAO study (1955), which concerned the possible contribution of food aid to economic development. A clear distinction was made for the first time between food assistance for welfare and support for general development programmes. That study stressed the role of food aid as an additional capital to finance economic development, including its balance of payments and budgetary support roles.

In 1959, the CSSD submitted a report on "Consultative machinery and procedures and operations and adequacy of the FAO Principles of Surplus Disposal" (FAO, 1959). As several countries became net exporters of basic foods in the early 1960s, additional tensions in food aid governance were recognized, and a CSSD ad hoc group was formed on "Changing attitudes toward agricultural surpluses". The report pointed out new developments in the scope and nature of "near-commercial" and "extra-commercial" transactions (FAO, 1963), and was followed two years later by a "Grey Area Panel Report" on developments and problems arising from concessional transactions with commercial features and commercial transactions with concessional elements (FAO, 1965).

Meanwhile, the establishment of the World Food Programme under the joint auspices of FAO and the United Nations in 1962 marked the beginning of multilateral food aid. The decisions and recommendations of the World Food Conference in 1974 (UN, 1975) marked another major step in the evolution of food aid. In particular, the conference established the WFP Committee on Food Aid Policies and Programmes (CFA) and the FAO Committee on World Food Security (CFS). Both of these committees promoted innovative approaches in the use of food aid to support food security and economic development in vulnerable countries.

In addition, the World Food Conference recommended the acceptance by all donor countries of the concept of forward planning of food aid and of a global food-aid target of 10 million tonnes of cereals. It also suggested the need for raising the share of food aid channeled through WFP, the grant component of the bilateral food aid programmes and the cash resources available for commodity purchases from developing countries. The conference recommended measures to meet international food emergency requirements in order to enhance WFP's capacity to render speedy assistance in emergencies. The latter recommendation led to the establishment of the International Emergency Food Reserve (IEFR) by the UN General Assembly in September 1975.

provided in response to emergency situations (FAO, 1999).

Food Aid Convention

The institutional basis of food aid was strengthened with the signing of the Food Aid Convention (FAC) in 1967 within the context of the International Grains Arrangement (IGA), an intergovernmental organization outside the United Nations system. The International Grains Council, located in London, has served as the convention's host agency and secretariat since its inception. The FAC has been successively

extended or renewed since then, and the current convention, which came into force in 1999, has been extended beyond its scheduled expiration on 30 June 2002. Negotiations on a new FAC may begin soon in anticipation of the conclusion of the Doha Round of WTO negotiations (Hoddinott and Cohen, 2006).

Under the FAC, donors undertake to provide a minimum level of food aid expressed in tonnage terms (wheat equivalent). This minimum level has varied between about 4 million and 7.5 million tonnes and is currently set at about 5 million tonnes. Membership in the FAC is limited to countries that commit to making food aid contributions. The 1999 FAC has 23 signatories.[4]

Since 1999, humanitarian and development assistance policy concerns are taken into consideration to a much greater extent than before. The objectives of the FAC are:

- to make "appropriate levels of food aid available on a predictable basis";
- to encourage "members to ensure that the food aid provided is aimed particularly at the alleviation of poverty and hunger of the most vulnerable groups, and is consistent with agricultural development in those countries";
- to maximize "the impact, the effectiveness and quality of the food aid provided as a tool in support of food security"; and
- "to provide a framework for co-operation, co-ordination and information-sharing among members on food aid related matters to achieve greater efficiency in all aspects of food aid operations and better coherence between food aid and other policy instruments".

In addition to the initial focus on grains, the current convention also includes pulses, root crops, edible oil, sugar and skimmed milk powder. The convention encourages members to provide food aid in grant form rather than as concessional sales, and to de-couple food aid from export promotion.

Hoddinott and Cohen (2006) review the principal criticisms of the FAC, and present four main areas of concern. The main focus of the criticisms has been on the minimum level of food aid. In recent years, this minimum level has been set at such a low level that it is not very meaningful. Usually the international community has exceeded this minimum requirement by considerable amounts. Since the commitments are based on volume rather than monetary value, the FAC should, in principle, contribute modestly to making food aid countercyclical with respect to world grain supplies and prices. As we have seen earlier in this chapter, this does not occur, as food aid provision is negatively correlated with global grain prices. The first key issue raised by Hoddinott and Cohen is that there are no significant consequences when members fail to meet their commitments. Second, there is a lack of effort and mechanisms to provide any meaningful dialogue on the effectiveness of food aid provided by signatories. Third, stakeholders who are not signatories (e.g. donor governments) are excluded from negotiations on FAC terms and discussions of food aid policy and practice. Fourth, the FAC operations lack transparency.

World Trade Organization

Food aid has been one of the most difficult issues discussed in the Doha Round of WTO negotiations. Progress was also slow on a number of other issues, but resolving the food aid issue was considered of pivotal importance in making progress in the agricultural negotiations overall.

The existing WTO disciplines on food aid came into force in 1995 under the export competition pillar of the Uruguay Round Agreement on Agriculture, and were intended to prevent food aid being used to circumvent commitments on export subsidies. In addition, the Marrakesh Decision on Measures Concerning the Possible Negative Effects of the Reform Programme on Least-Developed and Net Food-Importing Developing Countries (which is an integral part of the Uruguay Round Agreement) sought to ensure that agricultural reforms would not adversely affect the availability of a sufficient level of food aid to help meet the needs of developing countries, especially least-developed and net food-importing developing countries.

[4] Signatories of the FAC are: Argentina, Australia, Canada, Japan, Norway, Switzerland, and the United States, as well as the European Union (EU) and 15 of its member states.

The agreement states that food aid should not be tied to commercial exports, that all food aid transactions should be carried out in accordance with the FAO Principles of Surplus Disposal and Consultative Obligations and that such aid should be provided to the extent possible fully in grant form or on terms no less concessional than those provided for in the 1986 FAC. In principle, these explicit references to the FAO Principles and the FAC meant that they became part of members' rights and obligations under the legal framework of the WTO. However, adherence to these disciplines has not always been in line with expectations, partly because there has not been a corresponding remedy in the WTO legal framework in cases of partial compliance. It is for these reasons that new, enhanced disciplines on food aid were considered necessary by the WTO membership under the negotiations in the Doha Development Agenda (DDA).

Because of the humanitarian nature of food aid, there was general support by the WTO membership to preserve and enhance it. Some members considered that maximum flexibility should be allowed in the provision of food aid so that humanitarian considerations are not compromised. Others called for reforms, but were motivated by the same objective. They argued that disciplining food aid to minimize its possible adverse market effects, both on world markets and on the market of the recipient countries, would enhance its humanitarian effectiveness.

In the framework text of the General Council Decision of 1 August 2004, WTO members agreed that the objective of the new disciplines on food aid would be to prevent commercial displacement, and that food aid outside the disciplines (to be agreed) would be eliminated, in parallel with other forms of export subsidization. At the Sixth Ministerial Conference in Hong Kong Special Administrative Region in December 2005, ministers reaffirmed this commitment and agreed on 2013 as the date for elimination of export subsidies, including "effective disciplines on in-kind food aid, monetization and re-exports so that there can be no loophole for continuing export subsidization" (WTO, 2005). The ministers reconfirmed their commitment to maintain an adequate level of food aid and to take into account the interests of food aid recipient countries. A "safe box" for bona fide food aid was to be provided "to ensure that there is no unintended impediment to dealing with emergency situations". Thus, a clear distinction was established between emergency food aid and non-emergency food aid.

As regards emergency situations, the main contentious issue involved who could initiate appeals for in-kind food aid to be provided under the safe box. While some members argued for an explicit definition of what would constitute an emergency situation, the mainstream view supported the notion of a "multilateral" trigger, on the basis of an appeal by the relevant "multilateral or international agencies" that are best placed to determine and assess an emergency situation based on their own knowledge, expertise and standards, in collaboration with the recipient country concerned. There were also some differences regarding the role of other actors in the emergency response, including charitable bodies and bilateral government-to-government arrangements, as well as the duration of assistance under emergency situations.

The issue of disciplines for in-kind food aid in non-emergency situations was more difficult. One proposal was for the complete phasing out of this type of assistance by the end of the implementation period and its replacement with untied cash-based contributions. Another view was that both in-kind food aid and monetization should remain permissible subject to certain conditions – essentially, when such aid is based on an assessment of needs, is targeted to an identified vulnerable population group and is provided to address specific developmental objectives or nutritional requirements.

Although the Doha negotiations were suspended in July 2006, the latest report from the chairperson of the agriculture negotiations suggested that there was support by the WTO membership for some general principles that should apply to all food aid transactions, namely, that food aid should be needs-driven and result in additional consumption; provided fully in grant form; not tied directly or indirectly to commercial exports of agricultural products

or of other goods and services; not linked to market development objectives of donor members; and not re-exported, except during an emergency situation where it is an integral part of a food aid transaction initiated by a relevant United Nations agency. Other generally agreed principles were that, when providing food aid, donor members should take fully into account local market conditions of the same or substitute products and are encouraged to procure food aid from local or regional sources to the extent possible (WTO, 2006).

Governance options for international food aid

While the disciplines being discussed in the WTO appear to take the food security objectives of recipient countries very seriously, the WTO is not primarily concerned with food security. Some participants in the food aid discussion argue that a more effective international food aid coordination and governance mechanism is required to minimize trade disputes and maximize the effectiveness and appropriateness of responses to humanitarian emergencies, thereby helping to meet international poverty and hunger reduction goals (Konandreas, 2005; Barrett and Maxwell, 2006; Clay, 2006; Hoddinott and Cohen, 2006).

Humanitarian and development practitioners, meanwhile, increasingly recognize the need for greater accountability for the consequences of their activities in recipient countries. NGOs have undertaken a number of voluntary initiatives to improve the effectiveness of food aid as a humanitarian and development tool. Although these codes of conduct are voluntary, they have had considerable influence in recent years (Hoddinott and Cohen, 2006). CARE-USA's policy statement on food aid is summarized in Box 4. The Trans-Atlantic Food Aid Policy Dialogue, a broad coalition of NGOs involved in food aid programming, is also calling for substantive reforms. The International NGO/CSO Planning Committee for Food Sovereignty, an interlocutor between FAO and civil society, has provided a special contribution at the end of this report in which it calls for reforms of the international food-aid system.

Food aid in the context of food security

Along with food aid programming and governance, the way food aid and food security are conceptualized has evolved significantly over the past few decades. Food security is now widely understood as "access of all people at all times to sufficient, nutritionally adequate and safe food, without undue risk of losing such access" (FAO, 2003a). This definition includes four distinct dimensions – availability, access, utilization and stability.

For a long time, food security mechanisms that ensured the availability of food (through production, commercial imports or food aid) were viewed as sufficient to prevent hunger. Thanks to Sen's influential work, *Poverty and famines* (1981), it is now understood that the availability of sufficient food in the right place and at the right time is a necessary condition for food security, but it is not sufficient. Households and individuals must also have access to food through their own production, purchases in the marketplace or transfers via social safety nets.

Recent thinking has added the concept of utilization as a dimension of food security. This refers to the physiological ability of the body to absorb the nutrients in food, and thus highlights the importance of non-food inputs in food security such as clean water, sanitation and health care. Finally, stability is an essential element of food security because even temporary interruptions of food availability, access or utilization can have serious long-term consequences.

In any particular case of food insecurity, one or more of the dimensions of food security may be compromised. Effective support for restoring food security requires understanding which dimensions are threatened and why. The full set of mechanisms that guarantees continued physical and economic access to food must be considered. This demands an appreciation of food security that goes well beyond the domain of providing food aid.

The following section discusses food aid in the broader context of social safety nets aimed at improving food security. The

BOX 4
CARE-USA white paper on food aid policy

CARE-USA reviewed its food aid policies and management practices in 2005 and made several changes to ensure greater consistency with the organization's goals and values. CARE-USA has long been associated with food distribution programmes and continues to believe that food aid, properly managed, can be an important component of a global strategy to reduce vulnerability and food insecurity. However, recent analysis has shown that, under some circumstances, food aid can harm local production and markets, undermining long-term food security. CARE-USA's objectives in using food aid are to save lives, protect livelihoods, reduce vulnerability and address underlying causes of poverty, while minimizing any potential harmful side effects. The policy review led CARE to make four specific policy decisions:

- Monetization (the sale of food aid to generate cash for humanitarian programmes): CARE-USA will phase out monetization by September 2009, except in situations where it can be clearly demonstrated that monetization addresses the underlying causes of chronic food insecurity and vulnerabilities with reasonable management costs and without causing harm to markets or local production. CARE will use monetization only when it is sure that the food that is monetized reaches vulnerable populations and has effective targeting of poor people with limited purchasing power. CARE cites three reasons for this decision: (i) the practice requires intensive management and is fraught with legal and financial risks; (ii) it is an economically inefficient means of funding food security programmes; and (iii) open sales of commodities on local markets inevitably cause commercial displacement, harming traders and local farmers and undermining long-term food security.
- Local and regional purchase: CARE-USA supports local and regional purchases of food supplies for food security programming, but recognizes that the practice is complex and

different types of safety nets are outlined, and some features that should be considered in the design and implementation of safety nets are discussed.

Social protection, safety nets and food security[5]

Social protection is a broad concept that refers to a range of measures designed to provide income or other transfers to the poor and to protect the vulnerable against livelihood risks, with the overall aim of reducing the economic and social vulnerability of poor, vulnerable and marginalized groups (Devereaux and Sabates-Wheeler, 2004). These measures vary according to their degree of formality, who provides them and how they are funded. They may be informal (such as gifts or loans from family members) or formal (such as private insurance or government-sponsored social security schemes). Formal social protection programmes may be supported with domestic or international resources and be operated by governments, private businesses or charitable organizations.

Social safety nets, an important component of social protection, refer to cash or in-kind transfer programmes that seek to reduce poverty and vulnerability by redistributing wealth and protecting households against income shocks (Figure 7). *Food safety nets* are a subset of social safety nets, and aim to ensure a minimum amount of food consumption and to protect households against shocks to food consumption (FAO 2004b). *Food aid*, in turn, is one of many food safety nets.

Both social safety nets and food safety nets seek to ensure a minimum level of

[5] This section is based primarily on FAO (2004b and 2004c) with inputs from Barrett (FAO, 2006d).

may entail risks. The two main justifications for local and regional purchases are: (i) to reduce costs, delays and market distortions brought about by "tying" food aid to domestic procurement in the donor country; and (ii) to increase procurement flexibility while providing economic opportunities for small farmers in countries where the purchases are made. Local and regional purchases can cause harm if not managed properly, by raising prices for agricultural commodities in local markets.

- Specific United States Department of Agriculture (USDA) programmes: CARE-USA supports the Coalition for Food Aid's policy statement: "Food aid should not be used to enable a donor to establish an unfair commercial advantage and must not create disincentives to local production and markets". CARE believes two USDA programmes, Title 1 (concessional sales) and Section 416b (surplus disposal), are inconsistent with that position and therefore will phase out participation in those programmes. Some of the food aid provided under a third USDA programme, Food for Progress, comes from Title 1 and Section 416b and much of it is monetized; therefore CARE-USA will phase out participation in it as well.
- International trade, agricultural subsidies and food aid: CARE-USA will enhance its capacity to understand how the poor are likely to be affected by trade liberalization, particularly if liberalization is linked to reform of the food aid system and the possible elimination of safety nets precisely at the moment when they are most needed. CARE-USA is committed to engaging with sister agencies, donors and other stakeholders to increase the overall effectiveness of food aid as an important instrument to address underlying causes of poverty and food insecurity.

Source: CARE-USA, 2005.

well-being, including a minimum level of nutrition, and to help households manage risk, though they often use different definitions or indicators of household or individual well-being. Social safety nets usually rely on poverty indicators, while food safety nets rely on indicators more directly related to food insecurity (such as

FIGURE 7
Addressing vulnerability: the role of food aid in social protection

Source: adapted from WFP, 2004.

BOX 5
Food insecurity in crisis contexts

Crisis contexts offer particular challenges in the design and implementation of food security interventions. Interventions need to be based on an understanding of specific crisis contexts and the underlying processes that threaten food security.

A "food security crisis" can be seen as a time of extreme food insecurity, when the main danger is widespread loss of access to food, perhaps leading to famine. Walker (1989, p. 66) defines famine in terms of "a socio-economic process which causes the accelerated destitution of the most vulnerable ... to a point where they can no longer maintain a sustainable livelihood". This definition highlights the close connection between food security and livelihoods and the dynamic nature of food crises.

Yet, food security crises are still regularly treated as purely transitory phenomena (even when in practice they may last several years) with a primary focus on the shocks that trigger them and on the immediate measures required to restore acceptable food-consumption levels. The underlying mechanisms that lead to crisis are usually not addressed.

While crises tend to be diverse, their impacts are often broadly similar. Three broad types of crisis contexts can be identified: sudden-onset, slow-onset and complex or protracted emergencies. These are by no means comprehensive or mutually exclusive categories. Rather, they serve to demonstrate that the success of an intervention is very much the outcome of understanding the full crisis context and factoring this kind of knowledge into the response. Failure to do so can prolong a food security crisis.

Sudden-onset food crises are often associated with natural disasters triggered by climatic hazards, such as floods or hurricanes. Given the episodic nature of the shock, national governments and civil society often have significant capacity to mobilize resources and to respond to basic demands for food, water and shelter. The difficulties stem from the fact that resources to promote long-term food security through human, social and physical capital investment dwindle in the crisis context, so that transitory food insecurity becomes chronic.

anthropometric measurements, consumption surveys or vulnerability criteria).

Social safety nets and food safety nets play a much broader role than providing food during crises. They provide fungible resources that can be used to protect or to invest in productive assets. They can also be directly linked to human capital development when made conditional on school attendance and health care checkups.

Key criteria in designing food safety nets

Many criteria must be considered in the formulation, design and implementation of food safety nets:

- nature of food insecurity;
- programme objectives;
- institutional capacity and budgetary resources;
- politics, public opinion and the roles of government and civil society;
- incentives and preferences of the targeted population;
- targeting mechanisms;
- effects on prices, labour and trade.

The first consideration in designing a food safety net is to understand the nature of food insecurity: Who is food insecure and what are the immediate and underlying causes? Many factors may contribute to food insecurity, such as seasonal supply variations, chronic poverty and lack of assets, intrahousehold distributional inequities and the functioning of local food markets. Responding to food insecurity in crisis contexts is particularly challenging (see Box 5 and Chapter 5). The existence of food insecurity in areas where adequate food is available and food markets function well suggests that the problem is one of purchasing power; that is, that

Slow-onset food insecurity crises arise when people who are chronically food-insecure are faced with recurrent or persistent external shocks such as drought, HIV/AIDS, poor governance and policies, degradation of land and water resources, social and political marginalization or other factors. Although slow-onset crises may offer greater opportunities for planning and implementing appropriate responses, they can have macrolevel effects, leading to a cumulative drain on resources and undermining of the national capacity to respond. Where these impacts are widespread and severe, and structures of governance are too weak to prevent them, such situations take on the character of protracted crises.

Protracted or complex crises have the potential to increase food insecurity by downgrading, constraining or destroying altogether people's mechanisms for ensuring food availability, access, utilization and stability. Conflict can create uncertainties that hinder economic activity needed to develop food security, and economic activity can itself become a focal point for conflict. The involvement or destruction of wider governance institutions – particularly those of the state – has repercussions at the national level. Response options are limited both by the nature of protracted crises and by the "humanitarian–development" divide that inhibits the necessary broad, long-term analysis of the processes (social, political, economic and environmental) that shape food security.

Chapter 5 returns to this theme but, briefly, four elements need to be factored in when designing and implementing appropriate interventions in a crisis: (i) how the dynamic nature of a crisis affects the four food security dimensions individually and collectively over time; (ii) how the sociopolitical and economic context influences food security; (iii) how the nature of the crisis affects the institutional and governance arrangements for effective policy design and implementation; and (iv) how short-term outcomes influence long-term objectives for food security.

Source: Flores, Khwaja and White, 2005.

the food insecure do not have enough income to purchase sufficient food. In such cases, programmes should be focused on improving income-generating opportunities or providing cash-based transfers. If food markets are not functioning well, then a local or regional food shortage may be the key underlying problem, which would suggest that a programme should provide food directly or take measures to improve the functioning of local markets.

The second key aspect involves defining programme objectives. Different types of interventions are required for programmes aimed at alleviating structural or chronic food insecurity versus those aimed at transitory or crisis situations, a distinction taken up in more detail below and in later chapters. Other programme objectives could include empowerment of the poor or women, or addressing specific types of food insecurity, such as malnutrition among children.

Administrative and budgetary resources must be considered in designing food safety nets because they determine the capacity of a government or organization to carry out interventions. In many least-developed countries, administrative capacity is extremely limited due to weak government institutions and a shortage of qualified personnel. Administrative limits may thus constrain the level of complexity and the reach of a given intervention. Tight budgets obviously constrain programme design, most clearly in forcing a choice between coverage and the size of a given transfer.

A fourth consideration involves the relative roles of different levels of government and civil society, in terms of both the administrative and budgetary distribution of responsibility. This depends in part on the

BOX 6
Targeting

Targeting refers to efforts to ensure that assistance reaches all of the people, but only the people, who need it. Many different targeting mechanisms exist and policy-makers need to know how effective the different mechanisms are. Unfortunately, there is little consensus about which of the commonly used methods for targeting transfers to the poor is best. A meta-analysis by Coady, Grosh and Hoddinott (2004) compiled a comprehensive database on 122 programmes in 48 countries. The study provides information on the use of targeting techniques, summary statistics on comparative programme performance and regression analysis to examine the correlations between methods and outcomes. The most common targeting methods are:

- Individual / household assessment:
  - *Means testing:* An official directly assesses whether the applicant is eligible for the programme.
  - *Proxy means tests:* A "score" for each household is calculated based on a small number of easily observable characteristics.
  - *Community targeting:* A community leader or group of community members decides who in the community should receive benefits.
- Categorical targeting:
  - *Geographical:* Eligibility for benefits is determined by location of residence.
  - *Demographic:* Eligibility is determined by age, gender or some other demographic characteristic.
- Self-targeting: A programme or service that is open to all, but designed in such a way that participation will be much higher among those who are poor than those who are not.

The study drew five broad conclusions:

1. Targeting can work. The median programme provided a quarter more resources to the poor than random allocations would have. The ten programmes with the best incidence delivered two to four times their per capita share of benefits to the poor. Progressive allocations were possible in all country settings, in countries at markedly different income levels and in most types of programmes.
2. Targeting does not always work. While median performance was good, targeting was regressive in a quarter

institutional history of a given country, as well as the desire to correct or compensate for institutional shortcomings, such as lack of democracy at local levels. The politics and traditions of a given country may govern what kind of food safety net is acceptable in the eyes of public opinion.

Programme design is also guided by the type of incentive effects that policy-makers want to promote or discourage and the preferences of the target population. Potential beneficiaries may prefer a certain kind of programme for economic, social or cultural reasons. For example, households may prefer cash because it allows greater flexibility in meeting diverse needs, and indigenous communities may resist measures targeted at the individual or household level, preferring instead community-based measures. Ignoring local preferences may reduce the impact of a given intervention.

Targeting mechanisms must be carefully considered. Most interventions are targeted towards a specific region or type of household because of budgetary and equity reasons. The methodology chosen to reach a target population determines in large part the effectiveness of an intervention, as well as the risk of causing unintended negative consequences. Many methodologies are available (Box 6), and the choice depends on programme objectives and design, the availability of data, budget and the operational capacity of the implementing agency. Some programmes are considered self-targeting, in that wages are so low, or requirements so high, that only the poorest households will participate. Such a self-

of the cases. For every method considered, except self-targeting based on a work requirement, there was at least one example of a programme that was regressive.

3. There is no clearly preferred method for all types of programmes or all country contexts. Eighty percent of the variability in targeting performance was due to differences *within* targeting methods and only 20 percent due to differences *across* methods.
4. A weak ranking of the different mechanisms was possible. Interventions using means testing, geographical targeting and self-selection based on a work requirement were associated with more benefits going to the two poorest quintiles. Proxy means testing, community-based selection of individuals and demographic targeting to children showed good results on average, but with considerable variation. Demographic targeting to the elderly and self-selection based on consumption showed limited potential for good targeting.
5. Implementation matters tremendously to outcomes. Some, but by no means all, of the variability was explainable by country context. Targeting performance improved with country income levels, the degree of income inequality and the extent to which governments are held accountable for their actions. Generally, using more targeting methods produced better targeting. Factors not captured in the regressions (imagination and vigour in programme design and implementation) explained much of the difference in targeting success. Thus, there remains great potential for improvements in the design and implementation of targeting methods.

Source: Coady, Grosh and Hoddinott, 2004.

targeting scheme has other advantages and disadvantages.

For those programmes focusing on specific households, it is usually necessary to choose one adult as the person actually to receive the benefits of the programme. The choice of the beneficiary will depend on the programme's objectives, but most cash- and food-based transfer programmes now give priority to the responsible female in a household. This concept, which has become conventional wisdom in the development arena, is based on empirical evidence that females spend income differently than men. In particular, women are more likely to spend self-earned income on nutrition and children's health and education, whereas men are more likely to allocate income under their control to tobacco and alcohol. These gender differences in the allocation of income seem to be especially relevant among poor households (see, for example, Haddad, Hoddinott and Alderman, 1997).

Exit criteria should be determined by the programme objectives. However, getting individuals or households off a programme is politically sensitive and often technically challenging. Conditional cash transfer programmes linking payments to education should terminate participation once children have reached a certain age, and temporary programmes should have households exit the programme once they no longer need assistance. This last rule, common in the United States and Europe, is very difficult to implement for administrative reasons, even in middle-income countries. Often, simple time limitations are imposed. In any case, for low-

income countries, simple and transparent exit criteria should be established.

The important role that evaluation techniques should play in the selection, design, implementation and impact evaluation of food safety nets has gained increasing recognition in recent years. Evaluation techniques can improve implementation and efficiency of programmes after interventions have begun, supply evidence of the cost efficiency and impact of a specific intervention and provide information for the comparison of interventions within and between policy sectors. They provide invaluable insight into the incentive structure and processes of an intervention, and as such form an essential part of policy design and of the agricultural and rural development process itself (FAO, 2003b).

Design options

Three main types of design options for food safety nets are in use among developing countries: cash-based, food-access-based and food-supply-based.

Cash-based programmes provide a cash transfer to beneficiary households, sometimes in return for actions taken by these households. In one type of cash-based programme, there are no conditions or compliance requirements attached to the cash transfer. Such programmes are rapidly gaining support as a tool in addressing chronic poverty and food insecurity in Africa. Lessons from unconditional cash-transfer programmes in 15 countries in eastern and southern Africa were reviewed for the United Nations Children's Fund (UNICEF) by Save the Children UK, HelpAge International and the Institute of Development Studies (2005).

A second type of cash-based safety net includes conditional cash transfer programmes, which have become popular in the Latin America and Caribbean region in recent years. The Progresa (later renamed Oportunidades) programme in Mexico (1996 to the present) is the most prominent example. Households receive cash conditional on certain actions, typically school attendance by children and health examinations (FAO, 2003b). A third type is cash for work, in which households are paid to work on public works projects. An example would be the Maharashtra Employment Guarantee Scheme (MEGS) in India, which was introduced in 1973 (Subbarao, 2003).

Programmes based on food access seek to improve the ability of food-insecure households to acquire food. These programmes are founded on the presumption that adequate food is available and that food markets function reasonably well, so that an increase in demand will not lead to a substantial increase in food prices. One type of food access programme involves a cash transfer, but the cash must be spent on food. An example is Brazil's Carta Alimentação, launched in February 2003 as a key component of the Fome Zero anti-hunger programme. Households are restricted to spending the transfers only on food items, which is verified by having the household provide receipts for the amount of the transfer (Presidencia da Republica, 2003). A second type of food access programme includes food stamps, which have been used in a number of developed and developing countries, including Sri Lanka (Castaneda, 1999; Rogers and Coates, 2002).

Programmes based on food supply directly provide food or nutritional supplements to individuals or households. Some of these programmes are based on the assumption that food markets are not well functioning; that is, that an increase in demand would lead mostly to inflation, or simply to food being unavailable. This is the case of direct food aid or food-for-work programmes, which constitute the primary food safety net implementation of the World Food Programme. Other types of these programmes assume that some members of the household are particularly vulnerable to food insecurity or malnutrition, and thus specific directed food interventions, such as school lunches or food supplement programmes, are necessary. These types of interventions have been employed in many developing and developed countries.

Many food safety nets combine elements of these different options. A mix of design options is appropriate when the causes of hunger vary across regions, households or individuals, necessitating a heterogeneous response; when the causes of hunger are multiple within a household; or when one programme has multiple objectives. For example, in Brazil, under the auspices of

the larger Fome Zero programme, the Carta Alimentação described above is accompanied by other local development initiatives at the municipal level, including for example adult literacy, water cistern provision and school feeding, as well as programmes more regional or national in scope, including land reform and support for small-scale agriculture. Another example is the Progresa programme, which combines a conditional cash transfer with nutritional supplements targeted to pregnant and lactating mothers and infant children.

Cash, vouchers or food transfers

One of the most important decisions in designing a food safety net is whether to provide assistance in the form of cash, vouchers or food. All effectively increase household income, and thus the ability to acquire food. However, these programmes may have different impacts on household food security and upon local markets.

A cash-based transfer is appropriate when food markets work reasonably well and lack of access to food is the root cause of hunger. As discussed earlier, in these situations the food supply curve is virtually horizontal so an increase in demand will not lead to a substantial increase in food prices. A cash-based transfer should thus foster local market development of not only foods, but other goods as well. Furthermore, unrestricted cash transfers allow poor households to invest and spend on what they consider most important. Studies have shown that even the poorest of the poor invest some portion of their transfer on self-employment or agricultural production activities (Peppiatt, Mitchell and Holzmann, 2001).

A food access approach, such as food stamps, vouchers or restricted cash transfers, is also appropriate when local food markets work and lack of access to food is the root cause of hunger. This approach will also foster local market development, primarily of food goods. Food access programmes may have the advantage of being more politically acceptable, because it is very difficult to argue against providing food to the hungry. Food access transfers may also reduce the diversion of resources to "undesirable" consumption, because the programme design seeks to force spending on food items. Their administrative requirements and transaction costs are lower than those of food supply measures but greater than those of cash-based measures. On the other hand, the restriction on recipient spending on non-food items also limits spending on investment. Further, restricting spending may spur other negative behaviour, such as cheating or selling food stamps on the black market.

An approach based on food supply, such as food aid, is fundamentally different because it is most appropriate when an insufficient supply of food is the root cause of hunger. Cash in this case simply leads to inflation if markets are not working well or, worse, if food is simply not available. Like food access programmes, food supply programmes are often politically more acceptable than unrestricted cash transfers. Moreover, it is difficult to divert food to undesirable consumption. Importantly, food aid is often donated and "free" to the receiving government. On the negative side, the availability of food aid may influence the selection of a less than optimal programme from the country's perspective. Further, as with the food access approach, providing in-kind food aid limits investment or savings opportunities by beneficiaries and may spur other negative behaviour, such as cheating or selling the food provided as aid.

Studies from the United States (Fraker, 1990) show that food access transfers, such as food stamps, had a bigger impact on food consumption than cash-based transfers, although beneficiaries preferred receiving the cash. Studies comparing food stamps and cash assistance in Latin America and the Caribbean (Handa and Davis, 2006; Rawlings, 2004) find that results differ by country. Poorer people have a higher marginal propensity to consume out of income than wealthier people (that is, they are more likely to increase consumption when their income rises), so the difference between the impact of food stamps and cash-based transfers would probably be smaller in poorer countries and in programmes where the poorest households are targeted.

For both kinds of transfers, some diversion from food to non-food consumption is likely to take place. Households receiving food stamps may purchase less food with their cash income (thus substituting between

the two sources of income), or sell some of the food stamps on the black market at a discount to generate cash. Households receiving cash may of course spend the income as they please. For both kinds of transfers, such diversion may be beneficial or harmful for long-term food security. Beneficial diversion may include the purchase of agricultural implements, school clothes or other items that are supportive of long-term improvements in food security.

Food aid to support nutritional outcomes

In addition to the availability, access and stability dimensions of food security, there is utilization to be considered; it refers to the ability of the recipient to absorb the nutrients in food. This dimension relates to the health status of the recipient and the availability of complementary factors such as clean water and sanitation facilities. For many people with compromised health, specially fortified foods may be necessary to provide the nutrients they require.

Relatively few studies have examined the nutritional impact of food aid. Bezuneh and Deaton (1997) reported significant nutritional gains for participants in Kenya's food-for-work (FFW) programmes. In another study, for rural Ethiopia, Yamano, Alderman and Christiaensen (2005) found that, relative to households who do not receive food aid, recipients of food aid experienced less child malnutrition and stunting. They conclude that "food aid has indeed been effective in protecting early child growth from droughts and other income shocks in food aid receiving communities".

In contrast, other studies were unable to find conclusive evidence in support of a significantly positive nutritional effect in various food aid programmes. While FFW programmes have been relatively successful in meeting the nutritional needs of food-deficit households in the short term, they have not been as effective in providing long-term food security. Rural infrastructure projects supported by FFW programmes are not equipped to address both short- and long-range food security goals adequately (Clay, Pillai and Benson, 1998).

Separate studies by Brown, Yohannes and Webb (1994) and Webb and Kumar (1995) examined the nutritional impact of FFW in the Niger and found inconclusive evidence of an overall positive effect of food aid on all participants. Although they found a positive relationship between nutritional status and participation in the FFW programme, they were unable to establish causality because of limitations of the data. More recently, Quisumbing (2003) investigated the effects of food aid on nutritional status as measured by indicators of child nutrition in rural Ethiopia, and found that, although food aid has a positive effect on nutrition, the impact differs by gender of the child and the form of food aid distribution. Participating households tend to devote income from free distribution to girls' nutrition, whereas FFW income makes a relatively more significant contribution to nutrition improvements in boys.

Finally, although various supplementary feeding programmes are effective tools in increasing the caloric intake of the recipients, they are not enough to eliminate malnutrition. Beyond the increase in the quantity of caloric intake, the quality of the nutrient content of food aid is also important. In addition, other factors may contribute to suboptimal caloric intake and increased prevalence of malnutrition. These factors include poor treatments for infectious diseases, nutritional imbalances in local diets and various social and cultural conditions that give priority to adult males rather than mothers and children.

Conclusions

Food aid policy and practice have changed considerably in recent years. They have become more responsive to recipient needs and less driven by donors' interests, although many controversial practices continue. The decline in programme aid in favour of emergency aid implies a shift towards more targeted forms of aid. The increasing use of monetization in project aid partially offsets this improvement, however, because monetized aid is not targeted. As will be seen in the following chapter, food aid is more likely to harm producers and commercial markets when it is not well targeted.

Another important change in food aid is the increasing number of donors who are replacing commodity donations with

cash, making it possible to procure more food locally or in neighbouring countries. Unfortunately, some donors have replaced domestic procurement requirements with local and regional requirements, so that most food aid resources remain "tied" in ways that reduce both the flexibility and efficiency of food aid programmes. The effects of local and regional procurement on local markets are explored in the following chapter but, on efficiency grounds alone, tying should not be mandated.

International food-aid governance institutions have evolved considerably since the early 1950s, but they have not kept pace with the deepening understanding of food security, social protection and safety nets that has emerged in recent decades. Vested interests and political considerations along the whole food-aid chain, from donors to final beneficiaries, have impeded the effective governance of food aid. The primary victims of such malfunctioning are the vulnerable people that food aid is supposed to help.

Better governance of international food aid would target programmes to the poorest countries with a chronic unmet food deficit, and to well-identified vulnerable population groups in these countries. To the extent that this is achieved, considerations of commercial displacement and disincentives to domestic production should not arise. Better food-aid disciplines could also improve transfer efficiency. Although it may not be realistic to expect the complete replacement of in-kind food aid with untied cash resources, there are ways to improve the transfer efficiency of in-kind donations, such as relaxing processing and shipping requirements.

WTO members agree on the need to protect the role of bona fide food aid in emergency response, and they seem to have made a commitment to ensuring adequate levels of food aid. They have established a clear distinction between emergency and non-emergency food aid, but critical questions still remain: What defines the commencement and duration of an emergency? Can food aid be justified in non-emergency situations? Who decides? Existing international mechanisms for governing food aid already have severe limitations when it comes to monitoring and enforcing efficient and appropriate responses to humanitarian emergencies. Is it time for a new institution?

Recent thinking about food security and social protection has brought in-kind food aid under greater scrutiny from a development perspective. Effective support for restoring food security requires an understanding of which dimensions of food security are compromised and why. An emerging body of experience with social protection and food safety nets offers important lessons for the design and implementation of such measures. More research is needed to evaluate alternative interventions, but it is already clear that conditional and unconditional cash-based programmes offer exciting opportunities for promoting sustainable improvements in food security. Whether to use food instead of cash in social safety nets depends largely on food availability and the functioning of markets. Where adequate food is available and markets work reasonably well, in-kind food aid is not the most appropriate resource.

3. Economic controversies over food aid[6]

Although the moral imperative to provide assistance to people suffering from extreme hunger is undeniable, many thoughtful people question the effectiveness of food aid. Indeed, some ask whether such aid may in fact be counterproductive to longer-term sustainable reductions in hunger and poverty.

Much of the concern arises because the ultimate impacts of food aid programmes, like any other policy intervention, are not always as expected. The concept of unexpected consequences is a staple of economics. The basic idea is that the actions of one agent – firms, governments, NGOs, etc. – alter the incentives and constraints faced by others, inducing them to change their behaviour.

Unexpected consequences can be favourable, however, as with Adam Smith's "invisible hand", whereby individuals acting in their own self-interest (e.g. baking and selling bread to earn a living) create beneficial outcomes for society as a whole (e.g. making affordable bread available in the marketplace). More commonly, people think of unexpected consequences in negative terms, when anticipated benefits are reduced or negated because of some induced response to the original intervention.

Food aid may have a number of negative impacts at the household, community or national level, but the three most common issues are: (i) whether food aid creates "dependency"; (ii) whether it destabilizes local markets and agricultural growth; and (iii) whether it disrupts commercial trade patterns.

A critical point often overlooked in food aid debates is that not all food aid is equal. Empirical research finds that the impact of food aid depends crucially on: how it is managed (whether it is sold on local markets, distributed directly to beneficiaries or given in exchange for work or school attendance); how effectively and promptly needy individuals and groups are identified and targeted; whether it is sourced locally, regionally or in the donor country; and whether it is accompanied by other, complementary resources.

Another point often overlooked is that food aid has changed substantially in recent years, as the previous chapter emphasized. Many of the reports documenting negative effects of food aid (e.g. Lappe and Collins, 1977; Jean-Baptiste, 1979; Jackson and Eade, 1982) date from an earlier era when food aid mainly consisted of programme aid, which was donated to recipient governments and resold on local markets with little or no targeting to needy people. Great progress has been made since in the timing and targeting of food aid, so negative consequences are probably less common and less severe now than in earlier decades. Nevertheless, about one-quarter of all food aid is still untargeted, and targeting and timing remain enormous challenges.

This chapter first lays out a conceptual framework for understanding the potential effects of food aid. It then examines the relevant economic literature on the three main controversies surrounding food aid, as well as a few related concerns. It concludes with some general guidelines for minimizing the risk of negative consequences.

Livelihoods and food aid

To trace how positive or negative effects can arise from food aid, it helps to have a conceptual framework in mind. One approach is to begin with the idea that households control a bundle of assets, which they deploy strategically and dynamically to achieve their livelihoods.

These assets or endowments include physical capital (agricultural tools, livestock), natural capital (owned or rented land,

[6] This chapter is based largely on Barrett (FAO, 2006e) and Awokuse (FAO, 2006f).

access to common property resources), human capital (knowledge, skills and health), financial capital (cash-in-hand, bank accounts, remittances) and social capital (family and community networks, social norms and trust that facilitate coordination and cooperation). The most important asset of many poor households is their labour power – the physical ability of household members to work and generate income.

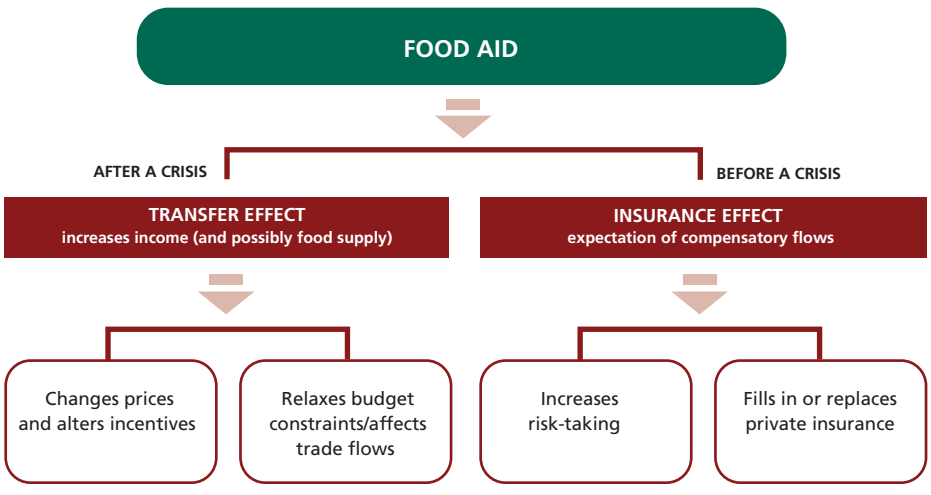
Households allocate their endowments across a number of activities including agricultural production, wage employment (both locally or elsewhere via migration and remittances) and non-farm activities. They base these allocations on their perceptions of the current and future returns of different activities, the variability of these returns and the extent to which they move together or diverge. All of these activities generate income either in kind or in cash, and together they constitute the household's livelihood. In addition, households may obtain income through transfers from other households, NGOs or from government. Food aid is one form in which households may receive income transfers.

With this in mind, consider Figure 8 (adapted from Lentz, Barrett and Hoddinott, 2005), which represents the possible impacts of food aid at a very general level. It shows that food aid flows can have two broad classes of effects: an insurance effect before the flow and a transfer effect after the flow. Both effects can alter household behaviour (e.g. by changing incentives) and can generate positive or negative outcomes for the household or for society as a whole.

If households expect that food aid or other emergency assistance will be forthcoming when a crisis occurs, this may provide a kind of insurance for them. It may replace other formal and informal insurance arrangements (e.g. private insurance, remittances, household labour exchange and government relief efforts), leaving individuals less able to cope without outside assistance when a crisis occurs. Expectations of assistance may induce excessive risk-taking, as when government-subsidized flood insurance or disaster relief induces people to build houses in low-lying, hurricane-prone coastal areas. This effect is called "moral hazard" (Box 7).

Moral hazard is typically thought to be a negative unintended effect of food aid, in that it may increase the vulnerability of people to adverse shocks. An emerging literature on poverty traps, however, emphasizes that the poor are often excessively risk-averse. Their overly cautious management of risk causes them to choose low-risk, low-return livelihood strategies that leave them chronically poor and vulnerable. Providing insurance to these households – in any form – may encourage greater risk-taking behaviour, which is desirable as

FIGURE 8
Economic effects of food aid



BOX 7
Community-level moral hazard

Do communities alter their collective behaviour in the presence of external assistance such as food aid? Some studies suggest that they do. For example, Groupe URD (2005) reports that in Afghanistan some communities stopped maintenance on public goods in anticipation of food aid payments for the same projects.

Lentz, Barrett and Hoddinott (2005) refer to this type of community-wide moral hazard as "opportunism", defined as behaviour that makes full use of external services in unexpected ways but which does not necessarily result in long-term adverse consequences.

Participatory decision-making appears to alleviate this problem. Kibreab (1993), in an ethnography of Somali refugees during 1979–1989, found that opportunistic behaviour was particularly prevalent in programmes that treated refugees as helpless victims and which, consequently, made no demands on them. Agencies running programmes through community participation did not report a lack of refugee motivation.

Participatory decision-making during the assessment phase of food-for-work projects may offer insights into which public works projects are suitable and whether a community desires the project even without the incentive of food aid. Communities' knowledge of a well-defined time frame for funding may also mitigate opportunism (Harvey and Lind, 2005). To date, there has been little research on such community-level phenomena.

a longer-term strategy for self-reliance (Dercon, 2004; Carter and Barrett, 2006).

After a crisis, the provision of assistance in the form of food or cash constitutes an income transfer (in cash or in kind) to recipients. As a result, it increases local demand for food. When food aid is provided in kind, it also increases the supply of food. Food aid in kind typically leads to greater growth in supply than in demand because demand for food increases more slowly than income.[7]

This has two potential effects. First, it will exert some downward pressure on local food prices, especially if the local market is not well integrated into broader national and global markets. Second, food aid will typically displace some commercial purchases, whether from domestic or foreign suppliers. Typically, neither price reduction nor market displacement effects are intended, but it is effectively impossible to avoid one or both effects.

Food aid affects markets even when commodities are not brought in from abroad. When assistance is provided in the form of cash for the local purchase of food (see Box 10) or as direct cash transfers to recipients, it expands local food demand. This boosts commercial purchases, whether from domestic or foreign suppliers, and can increase local prices. This effect is sometimes expected, as local and regional purchases are often justified on the basis of helping to establish commercial marketing channels.

But the effects can also be unexpected, as when local purchases drive up food prices, thereby harming poor, net buyers who do not benefit from the food aid distribution. Changes in prices or in the volume of food traded locally may have both positive, intended effects and adverse, unintended effects. Indeed, it is practically impossible to have only positive effects from a food aid programme.

Does food aid cause "dependency"?

Many of the potentially negative effects of food aid are commonly lumped under the catch-all label "dependency". Such effects can occur at the household, community

[7] This is due to the basic logic of Engel's law, which holds that the proportion of a person's income spent on food decreases as incomes rise. In economic jargon, the marginal propensity to consume food is less than one and declines as incomes rise. The fact that households in poor countries often spend more than 50 percent of their income on food, whereas households in wealthier countries typically allocate less than 15 percent, is a manifestation of Engel's law.

or national level. Dependency is said to occur when interventions aimed at meeting current needs reduce the capacity of recipients to meet their own needs in the future. This can happen when the provision of assistance creates disincentives for self-reliant behaviour (e.g., growing a crop or getting a job, maintaining community assets or enacting appropriate policy reforms).

It is important to recall from the discussion of insurance effects that food aid can alter people's behaviour only if they are reasonably sure that it will be available to them when they need it. Recent empirical studies suggest that most households in vulnerable countries neither understand who is targeted for food aid nor how the quantity of aid per household is determined, so food aid cannot provide reliable insurance against crises (Bennett, 2001; Harvey and Lind, 2005).

Furthermore, several studies find that the quantity of food aid received by households is usually too small to encourage their reliance on it (Barrett and Maxwell, 2005; Little, 2005; Lentz and Barrett, 2005). Little (2005) argues that the small amounts and the irregular timing of deliveries discourage Ethiopians from relying on food aid. As a result, they do not adjust their behaviour in the expectation of receiving food aid.

Does food aid make people lazy?

Perhaps the most pervasive criticism of food aid is that it may discourage people from working on their own farms or other employment, thus increasing their dependence on external assistance. Economic theory suggests that food aid transfers may have a negative effect on labour supply, because such transfers are a form of income. As incomes rise, people tend to work less simply because even hard-working people prefer more leisure to less (Kanbur, Keen and Tuomala, 1994). Any income transfer – whether in the form of food or not – discourages recipients from working, everything else being constant. The question is how severe is this effect.

The empirical evidence shows that labour supply becomes more responsive to changes in income as people get wealthier. In other words, wealthy people are more likely than poor people to work less in response to an income transfer. Food aid programmes that include wealthier beneficiaries magnify the labour disincentive effect by providing benefits to those who are most able and willing to turn transfers into leisure instead of into increased food consumption.

In many cases, reports of food aid causing labour disincentives seem to be based on the simultaneous existence of food aid and poverty, rather than on a causal relationship. This distinction between causality and correlation is critical. As Hoddinott (2003, p. 2) argues:

> *Purported [labour] disincentive effects... are based on the assumption that receipt of food aid and other household characteristics are uncorrelated. This is a strong assumption. If food aid goes to poorer villages... or villages receiving shocks that reduce the returns to labour, then the claimed disincentive effect is merely capturing the impact of these other characteristics.*

A slightly different sort of labour distortion can arise when food-for-work (FFW) programmes are relatively more attractive than work on recipients' own farms and businesses, either because the FFW pays immediately, or because the household considers the payoffs to the FFW project to be higher than the returns to labour on its own plots. In this case, food aid-based programmes siphon productive inputs away from local private production.

In theory, poor timing and FFW wages that are above prevailing market rates can divert labour from local private uses, particularly if FFW obligations decrease labour on a household's own enterprises during a critical part of the production cycle (Jackson and Eade,1982; Grassroots International, 1997; Lappe and Collins, 1977; Molla, 1990; Salisbury, 1992). For highly food-insecure recipients, FFW programme participation may provide essential food today while hindering labour investments in future productivity – a classic case of positive short-run interventions with negative long-run consequences.

The distorting effects of food aid on labour supply seem minimal when food aid is appropriately targeted to needy recipients. Put differently, when one encounters an apparent labour disincentive problem, this typically signals poor targeting as the root problem, not a poor work ethic among intended recipients.

Does food aid make people selfish?

Another way food aid may create dependency is through its effect on the other coping strategies available to households and communities. The concern here is that food aid and other forms of external public assistance may undermine informal social safety nets, making people less likely to help each other and thus more dependent on future flows of external aid.

Dercon and Krishnan (2003) point out that food aid may have conflicting impacts in the presence of informal insurance arrangements within a community. Food aid raises the income of recipient households, perhaps enabling them to help other households in the community through private transfers. On the other hand, food aid also serves as a public transfer, decreasing the need for private transfers. The authors find evidence that people in communities receiving food aid help each other less than in communities without food aid. They interpret this as evidence of food aid harming the mutual assistance arrangements on which informal social safety nets are based.

It is not clear, however, that food aid undermines such arrangements. Lentz and Barrett (2005) find that receiving food aid did not significantly affect the amount of remittances received by southern Ethiopian and northern Kenyan households during 1999–2001 (see also Abdulai, Barrett and Hoddinott, 2005). The empirical literature regarding the potentially negative impact of food aid on private remittances finds that this may be less of a concern than other considerations associated with food aid, such as price distortions for competing food commodities.

Does food aid foster bad government?

Some critics have argued that food aid can make national governments dependent on external budgetary and balance-of-payments support. Food aid may have a negative *policy effect* if the supply of inexpensive food allows recipient governments to ignore needed policy reforms and shift developmental resources away from the agriculture sector (Wallerstein, 1980). Food aid is sometimes considered a crutch for governments that practise policies that discriminate against domestic agriculture, causing regular shortfalls in availability which have then to be plugged with food aid.

Programme food aid, which dominated global flows through the mid-1990s, can be understood as a form of balance of payments assistance from a donor country government to a recipient government. Indeed, programme food aid is intended to relieve balance of payments constraints by reducing current food import costs or the debt servicing costs associated with food imports (in the case of concessional food sales on credit), and thus may be considered a kind of national balance-of-payments insurance.

Food aid can provide budgetary or balance of payments insurance, however, only if it flows predictably and pro-cyclically in response to need (i.e. if food aid increases when foreign exchange becomes scarce, or when world food prices increase). The simple inverse relationship between food aid volumes and world cereal prices shown in Figure 2 in the previous chapter suggests the opposite correlation: food aid flows are counter-cyclical to need. Programme food aid now constitutes less than one-quarter of total food aid and is dwarfed by other external aid flows. Although some governments are undoubtedly dependent on external aid, food aid is too small in most cases and too unreliable to create dependency.

On the other hand, it is sometimes suggested that food aid may be used to influence the policies of recipient governments (Hopkins, 1984). If food aid provides the key resource necessary to maintain an ill-conceived policy, curtailing deliveries may hasten necessary reforms, notwithstanding the moral and ethical implications of such a strategy. Conditions tied to food aid distribution sometimes help provide an impetus to reform policies, but cases are rare, and the experience of using food aid for extracting useful policy reforms from recipient country governments has generally been a failure.

Can dependency be a good thing?

For households affected by a crisis or unable to support themselves, such as those without able-bodied adults, dependence on external assistance can be a positive thing. Indeed, a rights-based approach to food security implies that people ought to be able to rely

BOX 8
Dependency and humanitarian relief

P. Harvey and J. Lind[1]

The focus of humanitarian action should be saving lives and alleviating suffering in situations where people's lives and livelihoods are under acute threat and local capacities to cope with crisis are being overwhelmed. In such situations, being able to depend on receiving assistance should be seen as a good thing. The focus should not be on avoiding dependence but on providing sufficiently reliable and transparent assistance so that those who most need it understand what they are entitled to, and can rely on it as part of their own efforts to survive and recover from crisis.

In situations of chronic food insecurity, where relief is required on a regular basis, agencies need to be concerned about the effects of that relief, and find ways in which assistance can strengthen livelihoods, as well as providing immediate relief. But rations should never be cut or relief withheld without solid evidence that the needs that prompted relief in the first place have been met.

Dependency frequently represents a way of blaming relief as one of the most visible symptoms of crisis, rather than the cause. Tackling dependency involves tackling root causes, whether this is resolving conflicts, addressing underlying poverty or tackling corrupt or predatory governance. But this is often not the responsibility of humanitarian actors. The problem lies not with relief and its failings, but with the lack of other forms of international engagement with crises.

[1] Overseas Development Institute, London.

on appropriate forms of assistance when they are unable to meet their own needs. Unfortunately, as discussed above, food aid is rarely reliable enough to provide such an insurance effect.

To distinguish this welfare-enhancing dependency from the more common, pejorative use of the term, Lentz, Barrett and Hoddinott (2005) refer to "positive dependency". Thinking about dependency in a positive context is consistent with the FAO "Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of national food security" (FAO, 2004b).

Given the weak empirical evidence regarding negative dependency on food aid, this concern seems exaggerated, especially seen against the humanitarian suffering that can arise from the premature termination of aid. Barrett and Maxwell (2005, p.180) argue:

> *…claims of dependency seem to have the direction of causality wrong. Shocks cause behavioural change that may necessitate various types of safety nets, including food aid. But food aid volumes transferred, in almost all cases, are simply too modest to make people dependent upon them, although they can help keep them alive ….*

Similarly, Harvey and Lind (2005) argue that concerns about dependency should not take priority over the more immediate goal of providing humanitarian support to people in need (Box 8).

Does food aid undermine local agriculture?

Much has been written about the possible disincentive effects of food aid on recipient countries' agriculture sectors since Schultz's (1960) widely influential analysis of the issue. There are several ways that food aid can undermine agricultural economies (Maxwell and Singer, 1979; Maxwell, 1991).

In addition to (but building on) the labour disincentive effects discussed above, food aid can affect household and national production if it reduces or destabilizes domestic food prices. Greater price volatility raises the uncertainty faced by producers, local traders and other market intermediaries and may

discourage investment in local market institutions. Finally, the availability of food aid, if it persists, may undermine the policy environment for agriculture by masking the need for policy reform.

Food aid depresses and destabilizes market prices

Among the most important consequences of food aid is the effect on food prices. The empirical evidence shows that food prices almost invariably fall in local markets immediately after a food aid distribution.

Food aid distributions can drive down local or national food prices in at least three ways. First, programme aid and monetized project aid are sold on the local market, directly increasing supply. Second, households receiving food aid will either decrease their purchases of the commodity received or of locally produced substitutes; or, if they also produce the commodity or substitutes themselves, they will sell more of their own production. Finally, recipients may sell food aid to purchase other necessities. Each of these actions increases supply or decreases demand for the food aid commodity and its substitutes, exerting downward pressure on food prices.

On the other hand, local or regional purchases of food aid increase the overall demand for food in the area and can cause food prices to rise, unless local markets are well integrated with regional and international markets. Less empirical evidence exists about the price impacts of local and regional acquisition, but as these transactions have become more common in recent years, the World Food Programme has begun monitoring their market impacts (Box 9).

Several researchers have found that food aid sold on local markets decreases prices (Faminow, 1995; Clay, Dhiri and Benson, 1996; Tschirley and Howard, 2003). Barrett and Maxwell (2005) argue that monetized project food aid has the largest negative effect on local market prices. Although United States law requires all operational agencies undertaking monetization to demonstrate that the monetized commodity will not result in substantial disincentives in either domestic agriculture or domestic marketing, the effectiveness of this system is a matter of debate (Ralyea, 1999).

Price decreases may be unavoidable with respect to in-kind food aid, but the magnitude of the price impact is affected by market conditions and management of the food aid operation. The extent of any food price reduction depends heavily on how well-integrated the local market is into broader regional, national and global food markets, and how well the food aid operation is targeted and timed.

Supply shocks associated with food aid deliveries and demand shocks associated with local purchases or cash transfers dissipate quickly in well-integrated markets, typically with only modest price effects. Colding and Pinstrup-Andersen (2000) argue that for small open economies[8], the effect of food aid on prices will be limited. Lind and Jalleta (2005) found that most farmers experienced falling grain prices during distributions of food aid in Delanta Dawunt in Ethiopia, but prices stabilized within a few weeks.

In poorly functioning markets segmented from broader commercial channels, however, price movements can be dramatic and more persistent, decreasing producer profits, limiting producers' abilities to pay off debts and thereby diminishing both capacity and incentives to invest in improving agricultural productivity. Barrett and Maxwell (2005) describe a collapse in sorghum prices in southern Somalia in 2000, linking it, in part, to poorly timed food aid deliveries to Ethiopia that then moved across the border into southern Somalia. Tschirley, Donovan and Weber (1996) found that large amounts of maize food aid delivered to Mozambique caused both yellow and white maize market prices to fall. In each of these examples, the mis-timing of food aid deliveries – with food aid arriving late, as the next harvest was coming to market – is at least partly to blame for the adverse effects on market prices.

The targeting and timing of food aid deliveries matter fundamentally to the prospective impacts of food aid on local food prices. Households that receive food aid will either purchase less food in the market or sell more of their own production. This effect will be smaller for food-insecure households, whose capacity to purchase food is sharply constrained. It will be larger for better-off

[8] Such economies are called "price-takers" because their market is too small to influence world prices.

BOX 9
Experiences with the World Food Programme's local procurements

The World Food Programme commissioned several country case studies to analyse local food aid procurement. The reports demonstrate that the effects on production, price stabilization and market development differ from country to country. The differences are largely results of the size and timing of local procurements relative to total production.

In Bolivia, Burkina Faso and South Africa, WFP purchases counted for less than one percent of total production, and thus made little impact on agricultural prices and production. In Nepal, greater transparency of procurement plans may help support prices (and thus farmers' incomes) immediately after the harvest, because rice millers would factor this demand into their purchasing decisions.

In Ethiopia, roughly 20 percent of total food aid has been purchased locally. But because the bulk of procurements were made several months after harvest, when prices started to rise rather than fall, the local procurements did not contribute to price stabilization. Late procurement mainly benefited traders with some storage capacity rather than farmers, who normally sell their produce just after harvest. As is often the case for emergency operations, late donor cash contributions or the necessity of responding to sudden needs limited WFP's ability to procure during the main harvest.

All but one country case study (South Africa, where trading activity is well-developed) reported that the WFP bidding regulations ensured competitive procurement and contributed to local traders adopting higher business standards. These reports also reported, however, that the WFP bidding regulations benefited large traders who had the financial ability and physical facilities to keep stocks. Some reports suggested less centralized bidding procedures that would also benefit smaller traders and farmers' cooperatives situated outside the main terminal markets. One should, however, keep in mind that relaxed bidding procedures for these groups could lead to increased cost of procurement. Increased procurement costs would mean a transfer of WFP resources from the poorest of the poor to less poor farmers who produce a marketable surplus.

The Ethiopian, Nepalese and Ugandan studies emphasized that the private sector had benefited from the local purchases. They reported improved transport infrastructure and increased storage capacity. The Ethiopian case study also reported increased entry of private traders and increased competition, while the Nepalese study described improved milling and other processing facilities.

Sources: Salinas, Sagalovitch and Garnica, 2005; Institut du Sahel, CILSS, 2005; Agridev Consult, 2005; Narma Consultancy, 2005; Vink *et al*., 2005; Serunkuuma and Associates Consult, 2005.

households that receive food aid due to poor targeting. Similarly, food aid provided during the lean season between harvests displaces relatively little in the way of commercial purchases by food-insecure households that, by definition, are unable to acquire sufficient food on their own. Poorly targeted or mis-timed food aid has a greater likelihood of distorting market prices, with likely negative implications for food security.

In contrast, well-timed food aid provides direct benefits to recipients, and can provide indirect benefits to non-recipients through its impact on market prices. Leach (1992), in her study of Liberian refugees in Sierra Leone during 1990–1991, found that food aid sold by recipients lowered the price of food during the lean season, a time of traditional food insecurity for the host community. Lower prices benefited both food-insecure households in the host community and refugee households, especially those who did not directly receive food aid. Traders of complements (e.g. soap, vegetables) also

faced increased demand from aid recipients (Leach, 1992).

Bezuneh, Deaton and Norton (1988) and Barrett, Bezuneh and Aboud (2001) found that food aid distributed directly or through FFW programmes to households in northern Kenya during the lean season likewise fostered increased purchases of agricultural inputs such as improved seeds, fertilizer and hired labour, thereby increasing agricultural productivity. Thus, the price effects of food aid deliveries are not necessarily harmful if operational agencies can properly manage the targeting and timing of distribution.

Production paradox

Does the price-depressing and destabilizing effect of food aid create a disincentive for local and national agricultural production? Despite theoretical expectations and many empirical investigations of the possible production disincentive effect of food aid, the results are rather mixed. Although several early food-aid studies found empirical evidence of production disincentive effects, the balance of recent evidence does not support the hypothesis that food aid has a substantial, negative impact on local and national agricultural production. This is due to the fact that production in many of these countries is influenced by a number of factors that may outweigh the impact of short-term commodity price fluctuations, including natural phenomena such as weather patterns and pest loads, and the lack of productivity-enhancing investments such as fertilizers, improved seeds and water control measures.

Mann (1967) found that food aid to India resulted in a significant decline in agricultural output. In a subsequent study in India, Isenman and Singer (1977) found that the disincentive effect had weakened considerably in the presence of improved government food-distribution policies and lower food-aid volumes.

Singer, Wood and Jennings (1987) found that EU food aid in the form of milk powder had a negative effect on the local dairy industries in several recipient countries. In a comparative study of three food aid recipients in sub-Saharan Africa, Maxwell (1991) found weak support for the disincentive effects of food aid and suggested that the effect of food aid on local prices and production depended also on the prevailing institutions and policies. Fitzpatrick and Storey (1989) also found some evidence of the disincentive effect of food aid.

In contrast, several more recent empirical studies have found that food aid does not appear to depress local agricultural production, at least in the long run. For example, Lavy (1990) used time series modeling methods to investigate the dynamic effects of food aid and found no support for disincentive effects in sub-Saharan African countries. Rather, he found that food aid deliveries encouraged additional local food production in cases where food aid complemented domestically produced cereals.

Barrett, Mohapatra and Snyder (1999) studied the impact of United States food aid on domestic production and food imports for the 18 largest food aid recipient countries over the period 1961–1995. They found that domestic production declined slightly immediately following a food aid delivery but that this effect almost entirely disappeared over time.

Lowder (2004) analysed cross-country panel data and found no significant disincentive effect on domestic agricultural production in recipient economies, irrespective of whether untargeted programme or targeted project food aid was analysed. Her findings are consistent with results from previous studies (Maxwell, 1991; Arndt and Tarp, 2001). Other studies that investigated the impact of food aid on recipients markets include Hoffman *et al.* (1994) and Tschirley, Donovan and Weber (1996).

A recent study by Abdulai, Barrett and Hoddinott (2005) also failed to find significant production disincentive effects. Using repeated longitudinal observations of households, they were able directly to refute claims of production disincentives among Ethiopian farmers in their sample. They found that a seemingly negative correlation between food aid and production did not reflect a causal relationship. Rather, food aid goes to communities that are already suffering from low productivity and adverse shocks. They argue that it may be more accurate to say that these problems *cause* food aid than the reverse.

Recent research in Kenya suggests that producers choose their crops based on long-term price trends, not on short-term fluctuations. Therefore, production changes may be more likely to occur in areas with recurrent crises and long-term food aid rather than one-off events such as emergency response (Deloitte Consulting, 2005).

How can the consistent evidence of negative price effects be reconciled with the absence of any significant disincentive to production? Schultz's (1960) original proposition rested on several implicit assumptions that may not – or at least may no longer – hold in reality. First, it is assumed that the recipient country is a closed market economy where prices are determined domestically without outside influence from international trade. For an open economy, this is equivalent to assuming that food aid is wholly additional to commercial imports. Second, the food aid basket is considered to be identical to the domestically produced food basket. Finally, food aid is assumed to be completely untargeted to food-insecure and poor segments of the population. If all these assumptions hold, then food aid would be expected to depress domestic production.

On balance, however, these assumptions no longer reflect conditions in recipient countries or the nature of food aid. Most food aid recipient countries participate in international trade and experience significant government interventions in the food market. Food aid supplied, particularly in emergency situations, typically differs substantially from the locally produced foods, and therefore the two may be more complementary than competitive. Furthermore, as noted above, an increasing share of food aid is targeted to needy people in emergency situations and thus would have less price or production effects on local markets.

Barrett, Mohapatra and Snyder (1999) argue that when needy households receive food aid it allows them to invest more resources for production in the following year. The ambiguity of the existing evidence arises because this positive input effect cancels out the negative price effect of food aid. Any adverse producer disincentives that might be caused by food aid appear to be offset by the benefits of increased liquidity for investment by smallholders.

Production disincentives are most likely to occur when food aid has what producers expect to be a relatively permanent negative effect on product prices, or when it interrupts regular investment or maintenance cycles that maintain or enhance local agricultural productivity. The key triggers to study are thus the medium- to long-term expected price effects and any disruptions in on-farm activities due to the method and timing of food distribution (Box 10). Both of these factors are largely driven by programming variables such as targeting methods and timing of deliveries.

Markets matter

The effects of food aid on local traders and other marketing intermediaries have not been well researched. Given the central importance of markets for food security, this gap in the literature is surprising. Market intermediaries serve a crucial role in smoothing fluctuations in food supplies and prices over time and space, buying and holding commodities when supplies are plentiful (such as right after harvest) and selling them when supplies dwindle (during the "lean season" between harvests). If food aid undermines their ability to serve this function, it could have long-term consequences that would be difficult to verify empirically.

As discussed above, economic theory and the empirical evidence suggest that injecting food aid into a market will dampen and destabilize prices unless local markets are well-integrated with regional and international markets. Those who sell similar products may suffer losses owing to decreased demand, falling prices or both, possibly driving some out of business.

On the other hand, food aid has sometimes been credited with supporting the development of local marketing channels by expanding the size of the commercial market (Box 11). Similarly, food aid frees up household resources for other purchases, so traders of other necessities may benefit. Theory also suggests that local or regional food-aid purchases can drive up prices, potentially benefiting net sellers and traders who accurately predict such trends.

BOX 10
Food-for-work and local agricultural production

Anecdotal evidence suggests that food aid, in the form of FFW programmes, may harm local production by encouraging households to reallocate their labour away from production towards FFW. The econometric or ethnographic evidence in support of this claim is thin, however, and there are examples where the opposite seems to occur. In the case of FFW for on-farm soil and water conservation in Tigray, northern Ethiopia, on-farm labour and private investments increased (Holden, Barrett and Hagos, 2006). This also happened in the case of lean season FFW projects enabling smallholders to purchase fertilizer and hire labour to increase on-farm labour effort on their own plots in Baringo District of central Kenya (Bezuneh, Deaton and Norton, 1988).

FFW programmes are often used to counter a perceived "dependency syndrome" associated with freely distributed food. Yet, evidence suggests that poorly designed FFW programmes may risk harming local production more than free food distribution. Ravallion (1991) argued that setting wages correctly will induce self-targeting of food-insecure households whose time is less valuable than that of richer households. Barrett and Clay (2003) argue, however, that in structurally weak economies FFW programme design is not as simple as determining the appropriate wage rate. They find that in rural Ethiopia, higher-income households had excess labour and thus lower (not higher) value of time; therefore, these households allocated this labour to FFW schemes, in which poorer households could not afford to participate due to labour scarcity.

Bennett (2001) argues that FFW programmes in Cambodia are an additional, not alternative, source of employment and that the very poor rarely participate owing to labour constraints. Therefore, some targeting in addition to FFW may be necessary to reach the neediest households. Identifying who should be eligible for FFW, own-production labour requirements, expected duration of the distribution, structural factors (such as productive assets available to a household) and local wages can help determine the appropriateness of FFW and the risks of causing negative dependency.

The welfare impacts of any changes in food prices induced by food aid are likely to be mixed. This can be most easily understood by thinking about the people in an area that receives food aid in terms of two criteria: whether or not they receive food aid (recipients versus non-recipients) and whether they are net sellers or net buyers of food. Figure 9 depicts the simple two-by-two matrix that results.

In Figure 9, food aid in kind brings commodities into an area and drives down local prices. This unambiguously benefits food aid recipients and net food buyers through the direct transfer effect recipients enjoy, as well as through the indirect benefit that arises due to lower prices for the foods they buy. Even non-recipients benefit as long as they are net food buyers, because they can afford to buy more food when prices are lower.

Net sellers of food are unambiguously worse off because the price they receive for their output is lower. This negative effect could be offset, however, if they also receive food aid or some other form of compensatory transfer. The welfare effects on net sellers who also receive aid are ambiguous, depending on how the unintended, adverse price effects balance out against the intended, positive transfer effects. This simple diagram captures the longstanding concern about unintended adverse effects on net seller farmers as well as the intended benefits to net food buyers, who represent the majority of the poorest in virtually all communities.

Figure 9 also shows the welfare effects of local and regional purchase operations, i.e. food aid interventions in local markets. When the food is purchased in the local

BOX 11
Food aid for market development

Food aid has been credited with promoting local market development by helping to nurture competitive, efficient channels through which food can flow from producers to final consumers. Market-mediated food-aid operations – whether on the supply side through monetization of in-kind food aid, or on the demand side through local and regional purchases using donor cash resources – sometimes have an explicit goal of helping to develop food marketing channels in low-income areas where markets perform rather poorly. For example, food aid sold through small, village-based processors and traders may help to stimulate the emergence of a competitive food distribution channel (Abdulai, Barrett and Hazell, 2004; USDA, 2001).

The most commonly cited example of food aid being used to develop a local market is the Indian experience with Operation Flood, 1970–1995. This project was instrumental in helping establish milk producers' cooperatives and promote adoption of modern dairy production and processing technologies in villages in rural India (Candler and Kumar, 1998; Doornbos *et al*., 1990). Initially, the programme aimed at linking India's 18 best milk sheds with the milk markets of the four main cities: Delhi, Mumbai, Calcutta and Madras. By 1985 it had expanded to 136 milk sheds linked to more than 290 urban markets and had created a self-sustaining system of 43 000 village cooperatives covering 4.25 million milk producers.

market it can generate upward pressure on local food prices. That unambiguously hurts non-recipient net food buyers because they face higher prices for basic staples but do not enjoy any new transfers. The big winners from local and regional purchases are recipients who are also net food sellers. Indeed, net food sellers benefit whether they receive food aid or not. Recipients who are net buyers may be better or worse off, depending on how the unintended negative effects of the price increase balance out against the intended positive effect of the food transfer.

Figure 9 necessarily abstracts from important differences in timeliness of delivery and efficiency of procurement associated with local and regional purchases, both of which can dramatically affect targeting efficacy, and thus a simple two-by-two matrix cannot offer a full summary of all the intended and unintended welfare effects of food aid. But it does offer a useful simplification of the direct effects due exclusively to unintended, induced food-price effects, as perhaps mitigated (or reinforced) by the direct transfer effects.

FIGURE 9
Welfare effects of food aid

IN-KIND TRANSFERS

	Net food buyers	Net food sellers
Food aid recipients	VERY POSITIVE	AMBIGUOUS
Food aid non-recipients	POSITIVE	NEGATIVE

LOCAL OR REGIONAL PURCHASES

	Net food buyers	Net food sellers
Food aid recipients	AMBIGUOUS	VERY POSITIVE
Food aid non-recipients	NEGATIVE	POSITIVE

While quantitative studies of the impacts of food aid on market intermediaries are rare, a number of case studies have shown that commercial traders can respond quickly and effectively to food shortages, even in crisis situations. Conversely, unannounced or poorly timed food aid deliveries or government interventions can undermine the ability of traders to respond. Several of these studies are reported in more detail in the following chapter.

Does food aid disrupt commercial trade?

Food aid expands food supplies faster than food demand, as discussed above. The resulting demand–supply imbalance leads to some contemporaneous displacement of commercial sales of food in recipient economies, either from domestic suppliers or commercial imports. The evidence on domestic market displacement suggests that this effect is probably small, especially when food aid is targeted to needy populations in emergency situations. What does the evidence say about commercial trade displacement?

Several earlier studies found that non-emergency food aid could displace commercial food imports (von Braun and Huddleston, 1988; Saran and Konandreas, 1991; Clay, Pillai and Benson, 1998). Barrett, Mohapatra and Snyder (1999) found that food aid shipments from the United States reduced contemporaneous commercial exports to the 18 countries in the study by about 30 to 60 percent. In the longer run, the authors found that commercial trade actually increased in the wake of United States food aid shipments, with other exporters benefiting first and more strongly.

A study from the Swedish Institute of Food and Agricultural Economics (SLI, 2004) compared United States and EU food aid and found disparate effects on commercial imports. Whereas this study found that United States aid tended to replace commercial imports, EU aid appeared to cause a substantial increase in commercial food imports. The explanation for this seeming paradox is found in the details of EU programme aid, which permitted the re-export of aid and imposed trade-related conditions on the receipt of food aid. In addition, EU programme aid was given simultaneously with other aid efforts aimed at stimulating demand (SLI, 2004).

Whether food aid adversely affects international food markets depends on the manner in which the food aid is obtained, how well-integrated the recipient economy market is with the global market and the recipient demand for variety (see Box 12). Moreover, the longer-term effects of food aid depend on the dynamic income effects of food aid and the extent to which these stimulate future food demand. Dorosh *et al*. (2002) argue that import disincentives will be strongest when domestic prices fall below import prices.

The OECD (2006) study finds that food aid and commercial imports are complementary responses to emergency food-security needs. However, they argue that the relative inflexibility of food aid compared to cash can hinder the recovery of local economies. If trade displacement is minimized by properly targeting food-insecure households, as research on programme versus targeted aid suggests, well-targeted emergency aid would seem to cause little lasting displacement of commercial trade (Lowder, 2004, Barrett and Maxwell, 2005). When domestic prices fall below import prices, however, traders may not be able to afford to import food, which can threaten their viability as intermediaries and possibly disrupt future trading patterns.

Conclusions

The effects of food aid are complex and multilayered. Concerns about the risk of negative consequences have long been recognized and have tended to revolve around the following questions:

- Does food aid create dependency on the part of recipients at the household, community and national government levels?
- Does food aid distort market prices, creating disincentives for agricultural production and market development, undermining local traders and eroding the resilience of local food systems?
- Does food aid displace commercial trade?

BOX 12
Impacts of food aid on consumption patterns

Part of the donor-oriented rationale for food aid has long been export promotion. Since the exports from temperate zone donors are commonly different from the staple crops grown in tropical recipient countries, the logic of export promotion necessarily entails some effort to change consumers' preferences, to introduce them to new foods and thereby endogenously stimulate demand for foods with which they were previously unfamiliar, or which had formerly represented only a minor share of their diet. As Barrett and Maxwell (2005) show, however, food aid has generally failed in its trade promotion objectives.

However, food aid that is relatively inappropriate to local uses certainly can distort consumption patterns. Massive shipments of wheat and rice into the West African Sahel during the food crises of the mid-1970s and mid-1980s were widely believed to stimulate a shift in consumer demand from indigenous coarse grains (mainly millet and sorghum) to more Western crops, notably wheat. Similarly, grain-based food aid deliveries into pastoral areas in the Horn of Africa over the past decade have been criticized as inappropriate for people traditionally reliant on animal products (Barrett and Maxwell, 2005). Excessive shipments of unfamiliar foods can have adverse, unintended consequences.

The short answers to these questions are: no, maybe and yes. Despite the longstanding nature of these concerns and the strong views held by many observers, relatively little solid empirical evidence exists upon which to evaluate them. Given the substantial changes that have taken place in food aid programming over the past decade and the widespread calls for further reforms of food aid policy, this is surprising.

In theory, food aid can have two broad classes of economic effects: an insurance effect before the food aid flow and a transfer effect after the flow. These effects may have positive or negative consequences.

Insurance effects are particularly relevant to the debates over dependency and moral hazard. If food aid makes people lazy or crowds out existing informal safety nets, it may make communities less resilient to shocks and more dependent on external resources. If people expect food aid to "bail them out" of difficulties, they may engage in excessively risky behaviour. If governments receive large flows of external aid, they may be less responsive to the need for reforms. Although these concerns have some intuitive appeal, there is scant empirical evidence to verify them.

Indeed, one conclusion emerging from the work on dependency and social protection is that people *ought* to be able to depend on receiving appropriate assistance when they need it. This perspective underpins the rights-based approach to food security embodied in the FAO "Voluntary Guidelines" on the right to food. Such positive dependence could help in breaking the cycle of poverty and food insecurity, as outlined in the FAO twin-track approach (FAO, 2003a) (see also Special Contribution, pp. 78–80).

Transfer effects occur because food aid provides additional resources to recipients that may be used to increase their consumption of food, other goods or leisure. The transfer effects of food aid may have unexpected negative consequences, by undermining the incentives for people to work on their own farms or other activities to achieve their own food security.

The empirical evidence shows that labour disincentive effects of food aid are small, especially when food aid is targeted at the poorest, most food-insecure people. These people are so needy that the relatively small transfers available through food aid are too little to cause them to work less. Targeting of food aid through food-for-work schemes has been used to avoid creating labour disincentives, but this may be problematic because the neediest often face a tighter labour constraint than better-off

households. Where labour disincentives have been observed, they have generally been associated with targeting errors.

Food aid transfers clearly depress and destabilize domestic market prices. These effects are larger when food aid is poorly targeted and poorly timed, because less of the aid goes into additional consumption. Markets that are not well integrated with regional and international markets are particularly vulnerable to the price effects associated with in-kind food aid. Unfortunately, these are precisely the areas where in-kind food aid may be most necessary and most appropriate because poorly integrated markets are less capable of responding to local shortages. This underscores the critical importance of accurate targeting and timing of food aid and careful monitoring and assessment of its market impacts.

Although the short-run price-depressing and destabilizing effect of food aid is well established in the literature, there is little recent evidence to suggest that domestic agricultural production is negatively affected in any substantial way. This is because production in many of the recipient countries depends more on climatic variability and other factors than on a response to short-term price fluctuations. It may also be because farmers take a longer-term view of prices or because consumers often prefer local products when food aid is available at similar prices. For subsistence households, who are not producing for the market, food aid may stimulate production by freeing up resources for investment in tools and seeds.

Food aid does appear to displace commercial imports in the short run by about 30 to 60 percent. A strong result from the empirical evidence is that different types of food aid have different impacts on trade. Untargeted aid that is sold on the local market (programme or monetized project aid) is found by studies to be more likely to disrupt normal market channels than targeted aid provided for emergencies or through well-designed projects.

Outside emergency operations, in-kind food aid may play a constructive role in specific well-targeted projects, but it should be evaluated against other types of social protection interventions. Food aid should not be used simply because it is readily available, a point that later chapters will address in more depth. Because in-kind food aid can have consequences that are complex and far-reaching, it should be used only when it is clearly superior to cash or other interventions in achieving sustainable improvements in food security.

Local and regional purchases of food aid are often promoted as a solution to the commercial market disruptions caused by food aid sourced directly in donor countries. Local and regional purchases could overcome some of the transfer inefficiencies associated with tied aid, and could also stimulate local and regional markets while contributing to the immediate food needs of the hungry. But these transactions also have the risk of driving up local prices for poor consumers or stimulating unsustainable supply responses. Distributional issues also need to be considered, because larger producers and traders may be more likely to benefit than smaller operators. Given the very limited experience with these mechanisms, it is essential to proceed with care. Local and regional purchases should be explored, but they should not be required in all cases, and careful market monitoring, like that started by WFP, should continue.

The decline in untargeted programme food aid and the expansion of emergency food aid have reduced the likelihood of many of the negative consequences associated with food aid, although other problems may arise in crisis contexts. The following chapter takes up issues related to the use of food aid in crises, including complex emergencies where natural disasters are compounded by conflict.

4. Food aid in emergency response[9]

Transitory food insecurity is associated with risk and shocks that cause "temporary sharp reductions in a population's ability to produce or purchase food and other essentials [that] undermine long term development and cause loss of human capital from which it takes years to recover", if indeed recovery is feasible (World Bank, 1986). The sudden, dramatic collapse of food availability, access or utilization can cause permanent problems, even death, for those suffering such shocks, even if the underlying disruption is short-lived.

Food aid has been invaluable in providing basic nutritional needs to shock-affected people, saving untold millions of lives over the past half century or more (Barrett and Maxwell, 2005). The most vulnerable members of shock-affected populations – children and women, in particular – typically suffer disproportionately from food consumption shortfalls during episodes of transitory food insecurity, and often suffer even when other members of the household are able to cushion themselves against shocks (Hoddinott, 2006). Food aid can be particularly effective in meeting the needs of these vulnerable groups.

Equally important, timely delivery of food to acutely food-insecure people relieves pressure to liquidate scarce productive assets, enabling recipients to resume progress towards a fully secure livelihood as soon as the shock passes. Food aid is important in meeting the right to food and in protecting productive assets, especially the human capital that is the principal wealth of the poor.

The crucial humanitarian role of food aid has been explicitly recognized in the context of the WTO negotiations on agricultural subsidies, which have agreed on a "safe box" for emergency food aid (discussed in Chapter 2). The increasing dominance of emergency food aid within global food-aid flows over the past generation reflects the widespread recognition of the effectiveness of emergency food aid relative to other types of food aid. Emergency food aid continues to grow in absolute volumes and as a share of global food-aid flows, reaching 64 percent of the total in 2005.

Emergency food aid accounts for an even larger share of the financial resources devoted to food aid because it is more expensive than non-emergency aid. Emergency flows include a far larger share of the most expensive commodities, those used for therapeutic feeding. Transport and associated delivery costs are also much higher in emergencies, due to the use of extraordinary delivery means, the greater need for security in conflict-associated emergencies and slower delivery times when natural disasters have damaged infrastructure used for distribution.

There has been considerable progress over the past generation in the programming of food aid in response to transitory food insecurity. WFP is the dominant player in emergency food aid, although much of the aid it handles is distributed locally through NGO partners. WFP and its partners have made much progress in the development of early warning systems, emergency needs assessment practices and nutritionally appropriate emergency and therapeutic feeding rations. They have also pioneered the use of modern communications, information and financial technologies for emergency response. The progress made over the past two decades has been impressive and bears reinforcement and further investment.

Chapter 2 introduced the concept of social protection and discussed the role of food aid within a broader set of social safety nets aimed at ensuring a minimum level of well-being, including food security.

[9] This chapter is based on a background paper by Barrett (FAO, 2006g) and Flores, Khwaja and White (2005).

It also introduced some key considerations in designing food safety nets, particularly in crisis situations. Chapter 3 examined the economic impacts of food aid, concluding, among other factors, that poorly timed and targeted aid was the most likely to be associated with negative outcomes. Emergency aid was found to be least likely to cause harm, largely because it is targeted to people in crisis. This chapter builds on the conceptual and empirical analysis of these previous chapters by examining a large number of recent case studies in emergency response.

Beyond the physical and political challenges involved in responding to humanitarian emergencies – inherently difficult and often dangerous circumstances – emergency response is plagued by a host of institutional, conceptual and policy challenges. These challenges are manifest in three main areas:

- Resource constraints, rigidities and gaps that lead to: (i) excessive reliance on food aid in the overall response to emergencies; (ii) inadequate and inflexible funding for crises that lack media appeal; and (iii) bottlenecks and delays that cost lives and waste resources.
- Inadequate information, analysis and monitoring systems – and insufficient attention paid to available knowledge – in designing response options to address the real, priority needs of vulnerable people and groups.
- Policy gaps, which are part of the "humanitarian–development divide" that prevents response options that address the dynamic nature of crises and their interconnections with the underlying social, political and economic conditions.

In a very real sense, every emergency is unique and overgeneralization is dangerous because response must be context-specific. Nonetheless, there are some useful distinctions to be drawn among three broad classes of emergencies: sudden-onset emergencies, slow-onset emergencies and complex and protracted emergencies. The following case studies, grouped by class, reveal both an increasing degree of difficulty and a descending scale of success in meeting immediate humanitarian objectives while building the foundations for sustainable, long-term food security.

Sudden-onset emergencies

Sudden-onset emergencies typically arise in response to natural disasters that strike with little or no warning – examples include cyclones, earthquakes, hurricanes, tsunamis and many floods – although sudden-onset emergencies can also arise in response to disease epidemics or violence.

As the label suggests, the key feature that distinguishes sudden-onset emergencies from slow-onset ones is the time available to prepare for the event. Although one can certainly prepare for general contingencies – and the emergency professionals who increasingly staff operational agencies within the United Nations system, governments and the many private voluntary organizations generally do an outstanding job of this – sudden-onset emergencies allow little or no advance warning with respect to critical details that must shape response.

One early consequence of many shocks is the collapse of food production and distribution systems. This sometimes disrupts the *availability* of food in the affected area, and it is typically accompanied by deterioration in people's ability to *access* adequate and appropriate food. Along with damage to the food system, many shocks also disrupt water and sanitation facilities and hinder delivery of medical services, which can create problems for the proper *utilization* of food.

Food aid is often an essential component of humanitarian response in such emergencies. For example, populations caught in a conflict are often unable to pursue their usual livelihood strategies and become either refugees or internally displaced persons lacking both food and the cash necessary to procure it. In the short term, food aid may be the only option for protecting the right to food for such groups, and it is often a critical element in preventing the emergence of malnutrition-related disease and the sale of critical, productive assets that compromise vulnerable people's future well-being.

Although it may be necessary in some situations, food aid – especially food aid

sourced from donor countries – is often overemphasized in response to sudden-onset emergencies. Massive shocks that devastate local infrastructure and agricultural production almost invariably leave large populations in dire need of food assistance. However, transitory food insecurity more often arises from a crisis of food *access*, not food availability.

Even in emergency situations, established commercial trading networks commonly maintain or can quickly recover their distribution capacity, especially in urban areas, and can be enlisted to help provision more inaccessible areas where food insecurity has become most acute. This limits the need for slow and expensive transoceanic shipment of food aid and puts a premium on effective use of local and regional supply networks. Where trading networks have been disrupted by damaged infrastructure or a breakdown in civil order, for example, interventions to restore roads and security may be more effective and cost-efficient than food aid shipments (Levine and Chastre, 2004).

Asian tsunami – the Christmas crisis

Response to sudden-onset emergencies can be highly effective in spite of the inability to plan all the essential details in advance. The experience following the 26 December 2004 Asian tsunami offers perhaps the best recent illustration of effective response to a sudden-onset emergency (Cosgrave, 2005; Webb, 2005; WHO, 2005). This was one of the greatest natural disasters in recorded history, the fourth largest earthquake of modern times and the most devastating resulting tsunami recorded.

As many as 300 000 people were lost or missing, more than 1.7 million were displaced and many more were left unemployed or without crucial livelihood assets (e.g. fishing boats, stores, livestock) that were destroyed by the earthquake and subsequent tsunami. Roughly $10 billion in damage was incurred on two continents (Asia and Africa), all in the span of one day, and mostly within two hours after dawn on the west coast of Sumatra.

The resulting food insecurity was quite severe and widespread, with sharp falls in food access and utilization, and in some cases in food availability, due to massive disruption of livelihoods and infrastructure. The potential for a humanitarian disaster and far greater loss of life in the weeks and months following the tsunami was very real.

Yet the response to the tsunami was nearly as awesome as the event itself. International donors, both private and public, responded quickly and generously, contributing an estimated $15.5 billion internationally, most of it unrestricted in form. Moreover, donors were unusually quick to translate pledges into actual disbursements, closing the critical gap between the publicity-attracting pledge and the operations-enabling disbursements to a matter of days or weeks, rather than months or years, as too often happens in the wake of disasters.

This prompt and generous response allowed widespread relief efforts in the immediate aftermath of the earthquake and tsunami, followed by rapid transition to rehabilitation, permitted more flexible use of cash and non-food resources to meet specific, local needs, and attracted more organizations to participate than is the norm. Food aid deliveries were quickly tailored to ensure not only that sufficient food energy was made available to recipients but also adequate micronutrient availability through fortified biscuits, noodles and vegetable oil, iodized salt, etc.

The most devastated areas were able to begin the process of reconstruction quickly in spite of the horrendous losses caused by the earthquake and ensuing tsunami. Remarkably, some humanitarian organizations faced the extraordinary problem of having to contact donors to return unneeded funds or to ask that they redirect the funds to other distressed regions for which pledges did not come close to meeting needs. Most importantly, widespread early predictions of massive subsequent excess mortality due to infectious and hunger-related disease never materialized.

As frequently occurs in sudden-onset emergencies, coordination of needs assessment and interventions was sometimes insufficient, with excess supply of popular services, such as medical teams, and some underprovision of essential but less glamorous needs, for example potable water. Some promised interventions, such as house and boat construction, were not

promptly or appropriately realized, and some allegations of human rights violations in tsunami-affected areas have also been made, including discrimination in aid distribution, forced relocation, arbitrary arrests and sexual and gender-based violence (ActionAid, 2006a).

Although there remains room for improvement even in effective responses such as to the Asian tsunami, this episode vividly demonstrates the capacity of the international community to respond to a humanitarian crisis. Unfortunately, the response to the tsunami is somewhat atypical. A number of special circumstances contributed to the extraordinary success of the tsunami response: the timing of the disaster the day after Christmas and at the end of the calendar year, the vivid imagery of the catastrophe, the relatively strong institutional and physical infrastructure in place in much of South and Southeast Asia and the presence of many international tourists were among the factors. In particular, the tsunami captured the public attention that too often proves elusive in cases of emergency, generating tremendous political will to respond quickly, generously and flexibly – with cash.

Earthquake in Pakistan – ensuring access

The October 2005 Pakistan earthquake response provides an excellent example of the need to tailor emergency response efforts to the specific aspects of food security affected by the emergency (Nyberg, 2005). Pakistan was a net food exporter before the earthquake hit and had just enjoyed an above-average crop harvest. The most affected regions, the Northwest Frontier Province and Azad Jammu and Kashmir, were two of the most food-insecure regions of the country before the natural disaster, already importing foods from areas of surplus in the country and from neighbouring countries. The earthquake massively disrupted infrastructure in these regions, necessitating extraordinary logistical efforts to deliver food.

But food remained readily available in Pakistan, with minimal if any effects on local prices, production incentives or urban residents outside the immediate impact zone. The Government of Pakistan appropriately launched cash compensation schemes to restore food access for affected persons in urban areas and targeted relief food to those in areas where market access had been substantially disrupted. With some important exceptions, donors mainly provided cash for food aid procurement in local and regional markets, expediting response and enhancing the resource efficiency of the operations. While no substantive evaluations of this operation have yet been made available, initial indications are that it too was generally successful.

Silent emergencies – households in crisis

One final form of sudden-onset emergencies typically attracts less attention: household-specific shocks due to accidents, sudden severe illness (e.g. malaria, cholera, dengue fever), mortality, precipitous crop failure or livestock loss, fire, theft or sudden unemployment. Such shocks are commonplace, especially in poorer communities. Moreover, recent empirical studies suggest that they typically account for most household-level collapses into long-term poverty (Barrett *et al.*, 2006).

Because these are largely household-level shocks, with considerable variation of experience across households and individuals within a given region, the resulting acute food insecurity is often overlooked by humanitarian and development agencies in the course of standard planning for emergency response. These are the ubiquitous but silent emergencies that do not make it onto television screens in the world's financial and political capitals, but nevertheless constitute serious emergencies indeed for affected households. When formal and informal social protection mechanisms fail to provide adequate insurance coverage in the wake of such events, the longer-term human suffering and economic losses resulting from short-lived shocks can be considerable (Dercon, 2004).

Examples of social protection mechanisms that can be effective in such situations were discussed in Chapter 2. Properly conceptualized and designed, safety nets can protect the destitute, prevent people from *becoming* destitute and provide the insurance needed to encourage vulnerable populations to choose higher-risk, higher-reward livelihood strategies that can facilitate their climb out of chronic poverty

through steady accumulation and improved productivity of productive assets (Barrett, 2005; Carter and Barrett, 2006).

Safety nets based on food aid, such as food-for-work or food-for-school, can be helpful, but they almost always require other, complementary inputs or activities to protect the productive assets of vulnerable people. The record with respect to food-for-work efficacy is checkered (Ravallion, 1999; von Braun, Teklu and Webb, 1999; Barrett, Holden and Clay, 2004). Little empirical evidence directly compares the costs and benefits of food versus cash-based interventions, and this is a serious gap in the literature (Save the Children UK/HelpAge International/Institute of Development Studies, 2005).

A key determinant of efficacy of food-based interventions has been established: the reliable presence and functioning of government or NGO providers. Food-for-work or other food-based safety nets must be ready when households find they need assistance. Whereas donors and operational agencies often have time to field new programmes to respond to slow-onset disasters, sudden-onset, household-level emergencies require pre-existing response capacity in order to succeed. This typically does not occur where vulnerability results from conflict or poor governance associated with a failed state, but can work effectively in insuring against climatic, economic, environmental and health shocks experienced by some households within a region.

Lessons learned in sudden-onset emergencies

Food aid in response to transitory food insecurity associated with sudden-onset emergencies based on regionwide shocks such as cyclones, earthquakes, hurricanes and tsunamis appropriately focuses on the direct protection of human lives and the productive assets of vulnerable people, primarily through support for the nutritional status of groups directly affected by disasters.

The effectiveness of response depends on the rapid identification of affected people and an understanding of which aspects of food security have been compromised. Is food availability compromised through disruption of local production or marketing infrastructure? Whose livelihoods have been disrupted? Is this causing acute problems of food access?

The required balance between food and non-food (e.g. health, shelter, water, cash) resources must be accurately assessed, and the response must be mounted at sufficient scale, with minimal lags between pledges and disbursement of resources. Interagency coordination on professional needs assessments across multiple sectors and interventions is essential in order to avoid costly duplication of efforts and dangerous gaps in coverage.

Close attention typically needs to be paid to specific micronutrient requirements of affected populations, not just raw food-tonnage gaps. Engagement with local institutions and markets can effectively multiply the human, financial and logistical resources available to address pressing human needs.

Supply chain management is critical, especially as many low-income countries have limited port and bulk rail or road capacity, often leading to bottlenecks in transport that slow down commodity distribution. This has repeatedly proved a problem in landlocked countries in central and southern Africa over the past decade. On balance, however, major advances have occurred in international food-aid response to sudden-onset emergencies.

Progress has been somewhat less significant, however, in addressing transitory food insecurity that originates with shocks affecting specific households or individuals. Food-for-work and other employment guarantee schemes have proved reasonably effective as insurance mechanisms for such situations, but more needs to be known about the relative merits of food-based and cash-based initiatives, and the needs of households facing severe labour constraints must also be considered.

Much has been learned about how to design and operate these projects: how to set appropriate wage rates, proper oversight of targeting, ensuring availability of complementary, non-labour resources and technical oversight of projects, etc. The main challenge is to design, staff and provide resources for reliable, standing programmes that are accessible to households when they need them. Such safety nets must

provide predictable response mechanisms to help households cope with adverse shocks effectively and without compromising their future well-being.

Slow-onset emergencies

Slow-onset emergencies are, as the name suggests, disasters that emerge slowly and predictably over time. The primary examples are climatic shocks such as drought, macroeconomic crises (e.g. those associated with hyperinflation and other financial crises), conflict and disease pandemics that build slowly (for example HIV/AIDS). With slow-onset emergencies, there is time to prepare before the full force of the shock hits.

Many slow-onset emergencies happen with advance warning of several weeks or months. These include seasonally recurring crises – such as monsoon flooding in coastal areas of South Asia or dry season hunger in arid and semi-arid regions of Africa – that are regular and predictable phenomena. Such emergencies offer the opportunity for advance planning, and operational agencies often pre-position supplies in such areas months ahead of the anticipated period of need.

Unfortunately, the lead time available for preparing for slow-onset emergencies is not always well used. Monitoring and evaluation systems are often inadequate, and donors routinely fail to respond until a problem becomes a full-blown crisis worthy of international media coverage.

Financing is a common problem in effective preparation for slow-onset emergencies – far more so than for sudden-onset emergencies. The problem is one of political will and the challenge of capturing policy-makers' and the public's attention in slowly developing crises, and what Moeller (1999) refers to as "compassion fatigue".

In one innovative pilot effort to address this common problem of political will and timely financing, in March 2006, WFP announced that it paid the French insurance company AXA Re US$930 000 for an insurance policy against drought in Ethiopia that would pay up to $7.1 million to help up to 67 000 households in the event of inadequate rainfall during the critical March–October period. The idea of such index insurance is to use independent, objectively verifiable indicators of impending transitory food insecurity to trigger prompt payout according to pre-specified contractual terms.

Drought and locusts in the Sahel – opportunity squandered

The drought and locust infestation in the Sahel in 2004–2005 provides an unfortunate example of effective early warning squandered. Damage to crop and livestock production was widely predicted at least six months in advance of the crisis, with an international appeal issued for the Niger in November 2004. In spite of this early warning, the emergency went unheeded until television images of starving children began appearing in June and July 2005. Only then did global cries for action rouse donors into rapid, if belated and terribly expensive, response.

The drought reduced the availability of good grazing land, especially in the Niger, forcing poor pastoralists to sell their livestock at depressed prices and leading to a collapse of their livelihoods. Although the overall availability of food supplies declined only moderately, some countries in the region banned exports to neighbouring countries, creating severe localized shortages in the Niger. This forced food prices sharply higher at a time when incomes had fallen drastically. Deep and widespread poverty quickly led to a humanitarian crisis whose origins lay primarily in the chronic food insecurity that the poor of the region have suffered for years. Their precarious circumstances left millions critically vulnerable, and just a mild shock away from life-threatening nutrient deficiencies.

Early interventions to protect the livelihoods of pastoralists could have prevented the crisis. Relatively small, targeted assistance in the form of livestock feed, food or cash early in the drought could have averted the crisis. Keeping regional borders open for trade would have mitigated the price impacts of the moderate, localized supply shortfall. This was a classic case where lack of accountability and political will led to unnecessary human suffering and inefficient resource use.

Flood in Bangladesh – preparing for disaster

In some relatively slow-onset disasters, the lead time is well-used. For example, from July to November 1998, Bangladesh experienced its most disastrous seasonal flooding in modern history.[10] At the flood's peak in mid-September, water inundated 66 percent of the nation's land. Although the country is regularly affected by floods from overflowing rivers and coastal tidal rises, this flood substantially exceeded previous ones in 1954, 1974 and 1988.

Crop losses were extensive. In the autumn of 1998, the country faced a 22 percent shortfall between food production and national consumption, while 20 million people were made homeless. The magnitude and duration of the flooding raised the grim prospect of famine, as occurred in 1974–1975, when 30 000 to 100 000 people died in the wake of more modest flooding.

In spite of the magnitude of the flood and the associated production losses, interruptions to transport and displacement of households, no major food crisis emerged. The primary reason is that massive private sector imports – made possible by market and trade liberalization earlier in the 1990s and by government investment in marketing infrastructure – stabilized rice markets, enabling government and international NGOs to focus effectively on reaching about four million of the most desperate households with direct food transfers.

The rice harvest in November/December 1997 had also been poor, so stocks were relatively low, prices rose and the private sector responded by importing nearly 900 000 tonnes of rice from India in the first five months of 1998. Private sector imports resumed at an accelerated pace as the floods began. The Government of Bangladesh removed rice import tariffs and facilitated speedy transshipment and movement of grains into and across the country.

Prices of food grains that had escalated just before the floods remained relatively steady during and after the floods, rising only 7 percent in August–November over the May–July period. In contrast, in 1974–1975 rice prices jumped 58 percent over the same period and most famine mortality arose because staple foods were priced beyond the reach of the poor. The 1974 price spike cannot be explained by production shortfalls – which ultimately proved less than in 1998 – but were instead the consequence of poorly functioning domestic food markets and inadequate efforts to harness the potential of local markets and institutions to help avert an impending crisis.

The timely availability of food in 1998 was undoubtedly helped by the immediate food aid pledge of 650 000 tonnes when the government finally sought international assistance in late August. But ultimately the government distributed less than one-sixth as much rice as the private sector, and households relied far more heavily on private borrowing than on government or NGO transfers to cope with the flooding. The key to averting a humanitarian disaster was the quick response of the private sector – actively encouraged and facilitated by government – which effectively stabilized rice prices during the crisis, thereby protecting many poor households' food security through the worst of the flooding.

Drought in southern Africa – markets and mixed signals

The southern African region can expect droughts of varying severity two or three times per decade. White maize comprises a high share in the food budgets of middle- and low-income consumers in the region. Because white maize is relatively intolerant of drought, these events may adversely affect the food security and future livelihoods of millions of people (Tschirley *et al.*, 2006).[11]

The food shortage that occurred in much of the southern African region in 2002 and 2003 was caused by back-to-back below-average production over several years. The authors argue that the food crisis, on the other hand, was caused by the failure of governments and donors to respond to early warnings and, in some cases, the crisis was made worse by government interventions that inhibited traders from responding to the emerging shortages.

The early warning and response system worked during this period. It alerted

[10] This narrative is based on Barrett and Maxwell (2005), which draws on Ravallion (1987), Khan (1999) and del Ninno *et al.* (2001).

[11] This narrative is based primarily on Tschirley *et al.*, 2006.

local governments and the international community to looming food shortages at the time of the harvest and provided quantitative estimates of the number of affected households and the need for food aid and commercial imports. The system regularly updated these numbers, and mobilized public opinion and resources to meet enough of those estimated needs to mitigate the crisis.

But the authors argue that the humanitarian toll was higher than it should have been and that food prices were needlessly destabilized because governments intervened erratically in markets. They argue that if markets had been allowed to work, with clear signals from the government regarding the size and timing of food aid distributions, the humanitarian crisis could have been alleviated without negatively affecting markets.

According to the authors, the Government of Malawi failed to take into account informal trade (which had been a regular feature of deficit seasons for several years), and imported excessively large amounts of grain as food aid and for commercial distribution. Grain imports arranged through the informal private sector arrived before the official imports through government channels. This left the government with considerable amounts of grain that it could sell only at a loss and, as a result, prices in Malawi throughout the 2002/03 and 2003/04 seasons were exceptionally low, making private storage unprofitable and reducing production incentives for farmers.

The private sector in Zambia has the capacity to import substantial quantities of grain when needed, but the authors report that confusing signals arising from past government mistakes caused the private sector to reduce imports during the food shortages rather than increasing them. As a result, prices rose steeply. Better coordination and communication between public and private sectors would enable the Zambian private sector to import the quantities needed to keep prices stable in many future crises.

Tschirley *et al.* (2006) argue that Mozambique provides evidence that markets can manage crop fluctuations on a regular basis when government simply stays out of the way. Of the three main regions in Mozambique, the north produces a surplus of maize every year, the centre is usually but not always in surplus and the south is always in deficit. In response to this production pattern and to the long distances and high costs of transporting maize from the north to the south, Mozambique has maintained open borders, regularly exporting from the north (to Malawi) and importing (from South Africa) to the south. Largely for this reason, prices in Mozambique remained relatively stable during this crisis. Prices stayed well below those in Zambia in both the 2001/02 and 2002/03 marketing seasons. They were below the inflated prices in Malawi in the 2001/02 season and well above the very depressed Malawian prices towards the end of the 2002/03 season.

Drawing on a number of case studies in southern Africa, Takavarasha (2006) emphasizes the serious negative effects that unpredictable market interventions by one government can have on the food security of other countries in the region. Shepherd (FAO, 2005d) offers a number of recommendations to improve the capacity of the private sector to respond to food emergencies in southern Africa, including among others: improved market information systems, better communication between the government and the private sector, abolition of import and export controls and trade facilitation through improved infrastructure.

HIV/AIDS – a new kind of famine

Just as there are idiosyncratic forms of sudden-onset emergencies, so too are there individual- and household-specific forms of slow-onset emergencies. These are mainly associated with slow-onset infectious disease, especially HIV/AIDS, which gradually and predictably compromises food access and utilization for affected people and their dependents. The insidious nature of the HIV/AIDS pandemic in sub-Saharan Africa has led some commentators to label it a "new variant famine" (de Waal and Whiteside, 2003).

Since the HIV/AIDS pandemic began, 25 million people have died of the disease.

Another 42 million are now living with HIV (FAO, 2003b). Unlike many other kinds of shocks that cause transitory food insecurity, HIV/AIDS is often hidden in a shroud of stigma and silence while it gradually undermines established coping strategies for dealing with shocks (e.g. labour migration). Moreover, because HIV/AIDS primarily infects and kills people in the sexually active age bracket, which is of course the most economically active demographic group, communities hard hit by the HIV/AIDS pandemic tend to be left with households disproportionately heavy with very elderly and very young members (hence with a high dependency ratio). Such households are especially vulnerable to modest interruptions in food access (Haddad and Gillespie, 2001; UNAIDS and WHO, 2002).

The southern African food crisis of 2002 and 2003 highlighted the complex interaction between transitory food insecurity associated with a classic slow-onset emergency – drought – and this new variant of slow-onset disaster, due to HIV/AIDS (Barrett and Maxwell, 2005). For a number of years, the main emphasis of intervention in the pandemic was on awareness and prevention, and on interventions to assist affected individuals.

More recently, the broader impacts of the pandemic have been recognized, as well as the need for a broader set of interventions focusing on the affected population, and at the levels of the prevention and care of people living with AIDS, as well as mitigation of its broader effects. The HIV/AIDS pandemic is now seen by many observers as representing a new and completely different kind of emergency, one requiring novel approaches and thinking in terms of both humanitarian response and mitigation.

There is not yet, however, an accepted set of protocols on how best to address this most recent form of slow-onset, idiosyncratic emergency. Food aid is widely used as a major component of safety nets to mitigate the impact of the pandemic in important cases in sub-Saharan Africa, although it is unclear how appropriate or effective food-based responses to HIV/AIDS are relative to alternative interventions (Barrett and Maxwell, 2005).

Lessons learned regarding slow-onset emergencies

Individuals and communities are resilient. Proactive behaviour by recipients who are given the means to cope with shocks while they still have time to do so can often avert crises at much lower cost – in human and financial terms – than that exacted by a full-scale emergency. Large food-aid shipments are often unnecessary if timely deliveries of appropriate resources (often including but not limited to food) are made available in order to equip communities, households and individuals to manage the oncoming shock before they collapse into crisis.

This is the core motivation behind the emerging concept of "productive safety nets", currently being piloted in Ethiopia, which has experienced recurrent problems with slow-onset disasters, massive food aid shipments and increasing numbers of destitute people. It is also a key lesson learned from more successful episodes, such as during the Bangladesh floods of 1998. Reinforcing local institutions and markets is central to the strategy of harnessing the natural resilience of social systems.

Information systems, supply chain management and quick disbursement of pledged funds play an important role in ensuring timely and cost-effective provision and targeting of resources to protect food security and livelihoods. In slow-onset emergencies, early warning systems play a far greater role, buying time for the international humanitarian community and recipient country governments to design and implement appropriate responses.

This underscores the importance of political will to respond promptly and substantively to warnings. The Consolidated Appeals Process (CAP) established by the United Nations in 1991 to mobilize resources in response to emergencies has largely proved ineffective. UN Secretary-General Kofi Annan reported in October 2005 that flash appeals had generated on average only 16 percent of the requested funds (Fleshman, 2006).

Timely resource mobilization has proved especially problematic for complex emergencies and protracted relief and recovery operations, which are discussed more fully in the following section. The world must develop a more effective means

of addressing slow-onset emergencies, which should, in principle, be easier to handle than sudden-onset disasters.

Complex and protracted crises

Complex and protracted crises constitute a special type of slow-onset emergencies. They are understood here to entail situations in which large sections of the population face acute threats to life and livelihoods over an extended period (years, or even decades), with the state and other governance institutions failing to provide adequate levels of protection or support. The term has been applied most often where vulnerability is associated with violent conflict or political instability, such as in Afghanistan, Iraq, the Democratic Republic of the Congo, Somalia and the Sudan. Some would argue, though, that countries like Malawi and Zambia, afflicted by the HIV/AIDS pandemic, whose effects are compounded by weak governance and periodic economic and natural shocks, are also in a state of protracted crisis.

The number and scale of complex crises associated with violent conflict have risen sharply over the past decade, especially in sub-Saharan Africa. Many factors, including political interests, control of resources, ethnic and historical rivalries, regional differences and socio-economic conditions, are among the underlying causes of these complex crises (Grunewald, 2003).

The growing prevalence of such protracted and complex crises has created particular problems for the international humanitarian community because resources for addressing emergencies tend to wane after a period of months. For example, there have been regular problems of ration cuts in refugee camps in southern and western Sudan, the Democratic Republic of the Congo, Somalia and elsewhere, caused by ebbs in food aid pipelines for protracted and complex crises.

In complex and protracted emergencies, resource availability commonly falls below half of assessed needs, forcing aid agencies to impose drastic measures, such as the halving of rations, intended both to husband scarce resources and to shock donors into attending to pressing needs. These problems are compounded by the challenges of safety issues for emergency personnel, and the political problems associated with humanitarian agencies' operational independence from political entities, especially warring parties.

Concern with protracted crises is of two kinds. One relates to their prolonged and indefinite duration: these are situations in which no smooth or automatic transition from humanitarian emergency to "normal" development can be counted on. The needs and priorities of affected populations are diverse. Appropriate responses range from immediate lifesaving interventions in which food aid plays an important role, to the promotion and protection of livelihoods, to support for infrastructure, institutions and services. Quite apart from issues concerning humanitarian principles, this raises difficult questions as to how different objectives, time frames and agencies and organizations should relate to each other at a technical and managerial level.

The second kind of concern pertains to the political character of protracted crises and the challenge this presents for agencies seeking to uphold the fundamental humanitarian principles of impartiality, neutrality and independence. Where there is conflict and instability, not only are interventions complicated by institutional collapse and insecurity, but there are major risks of unintended consequences, both for aid workers and target populations. In particular, relations between aid providers and local political actors are fraught with ethical and practical dilemmas.

The case studies below reveal that all the challenges associated with emergency response are intensified in the case of complex and protracted emergencies. Resource constraints, analytical limitations and policy gaps pose serious obstacles to effective response. Notwithstanding the inherent difficulties in these situations, efforts to overcome the institutional, conceptual and policy limitations are urgently required.

War and food security in Eritrea and Ethiopia

The 1998–2000 war between Eritrea and Ethiopia, two of the poorest and most food-insecure countries in the world, claimed an estimated 80 000 lives and displaced more

than one million people. White (2005) assessed the economic and humanitarian costs of the conflict. He found that the economic costs to both countries were enormous, and the political implications remain unresolved. Even before the war the two countries faced successive food crises triggered by drought, rural overpopulation and land degradation.

As a direct result of the war, over one million people were displaced from agricultural lands and deprived of assets and livelihoods; humanitarian operations were constrained by security conditions, the border closure and Ethiopia's inability to access Eritrean ports; and many people experienced loss of food entitlements in terms of their ability to produce food or to acquire it through trade, sales or transfer.

Indirectly, the war exacted an even greater toll on food security. The scale of conscription and displacement in the two countries constituted a massive diversion of personnel away from productive activities. National expenditures on the war effort were huge. Estimated costs to the Ethiopian exchequer range between 7 percent and 20 percent of GDP. The percentage is far higher in the much smaller Eritrean economy. This level of public expenditure could have had substantial positive impacts if devoted to longer-term food security.

What is more, development aid to the two countries fell dramatically during the war period because of donor countries' disapproval of the conflict. This "principled conditionality" severely impeded improvements in measures to tackle extreme chronic poverty and boost resilience of livelihoods to drought and other periodic shocks. Another result of this "principled conditionality" was donors' reluctance to respond to appeals for humanitarian assistance, despite signs of a developing famine. The deliveries of food aid accelerated only after the media story on the famine broke. The sluggish donor reaction deepened the crisis.

The two governments have not yet started to normalize bilateral relations after the peace agreement in 2000, resulting in considerable economic costs to both countries as well as direct effects on the food security situation. For Eritrea, the closed border means the loss of its main export market and an important source of imported grain and livestock. For Ethiopia, the boycott of the ports in Eritrea leads to widening of the gap between import and export parity prices for cereals and a consequent increase in price instability.

Both countries have lost external trust and support at a time when they are sorely needed to address food insecurity. The border war and its unresolved tensions have had adverse effects on livelihoods that continue to be felt in many ways. The effects of the war are not easily separated from other political, social, demographic and environmental factors. Food and other emergency aid can successfully treat periodic crisis, but reversing the long-term decline necessitates a longer-term commitment. Against this backdrop, current needs in the region are being neglected (Box 13).

Chronic conflicts in Afghanistan, Somalia and the Sudan

Both information systems and responses often reflect an inappropriate dominance of short-term approaches. Such weaknesses are typical of aid interventions to support livelihoods and food security in long-running crises, and are not confined to Africa. A study of livelihoods programming in Afghanistan found that:

> *The dynamics of the chronic conflict in Afghanistan have been poorly understood, not least in terms of its effects on livelihoods. Aid practice has been driven by simplified stories about the country reinforced through short-term humanitarian based programming that has emphasized delivery and paid little attention to learning. The result has been a monotonous landscape of interventions.*
>
> (Pain, 2002, p. vi).

Aid policy in Afghanistan still tends to be grounded in the assumption that agriculture is the mainstay of food security and that agricultural investment will itself address livelihood needs. This is in spite of contrary evidence that suggests that households are diversifying their income-generation strategies so that food security is now based more on trade, seasonal migration and remittances (Pain and Lautze, 2002).

Aid interventions conceived and implemented as technical projects, without

BOX 13
Critical response gaps in the Greater Horn of Africa drought, 2005–2006

A recent study undertaken by the Overseas Development Institute (ODI) examines the disconnect between long-term programming and the emergency response during the Greater Horn of Africa drought in 2005–2006. The UN estimates at least 11 million people are in crisis in Djibouti, Eritrea, Ethiopia, Kenya and Somalia. The study questions why accurate and timely early warning (e.g. Famine Early Warning System [FEWSNET], FAO/Food Security Analysis Unit [FSAU] Somalia) did not lead to a rapid and appropriate response. It highlights how inadequate contingency planning, limited capacity in livelihoods programming and inflexible funding mechanisms led to delays and deficiencies in livelihood interventions and the predominance of food assistance in the emergency response.

Drawing on secondary data and interviews, the analysis points to the misunderstood nature of pastoralism, particularly across the Ethiopia–Kenya–Somalia borders, and reports malnutrition levels far beyond emergency thresholds, with livestock losses of up to 70 percent and the mass migration of pastoralists in search of water, food, jobs and relief aid.

The crisis reflected a context of chronic food insecurity where emergency alerts were signalled repeatedly, yet humanitarian and development actors found it difficult to distinguish the symptoms of chronic destitution from those of a critically unstable situation. In particular, the chronic vulnerability of pastoralists in East Africa has been seen as an indicator that livelihoods are unsustainable and that they should be helped to undertake farming or other productive activities. This ignores the range of external factors that have contributed to undermining their resilience. Pastoral groups suffer from political and economic marginalization in most countries in the Horn of Africa. Few national governments or external actors recognize this by appropriate policy responses, e.g. addressing access to natural resources such as land and water.

Source: ODI, 2006.

regard for the political context, run the risk of deepening relations of exploitation for intended beneficiaries. Examples of this are many. The attempt by the United States Agency for International Development (USAID) in 1992–1993 to undermine warlords in Somalia by flooding the country with food aid to bring down food prices had the perverse effect of increasing the amount of food they appropriated, while also undercutting local farm produce (Natsios, 1997).

Similarly, attempts by aid agencies to boost the self-reliance of displaced Dinka communities in Southern Darfur, the Sudan, in the mid-1990s by replacing food aid with agricultural inputs and loan programmes neglected the relations of subjugation in which Dinka were trapped vis-à-vis surrounding (mostly Baggara Arab) communities and actually increased their dependence (Duffield, 2002). A case study of the Nuba Mountains in the Sudan suggests the kind of sensitive analysis that is required to respond constructively in such complex environments (Box 14).

Conflict in the Great Lakes region of Africa

The Great Lakes region of central Africa has been engulfed in conflict for more than a decade. With 3.8 million causalities since the beginning of the conflict, the crisis in the Democratic Republic of the Congo is the deadliest since the Second World War. An estimated 1 200 people continue to die every day from the consequences of the conflict, primarily from preventable and treatable diseases. The maternal mortality rate, estimated to be 1 837 deaths per 100 000, could be one of the highest in the world, and HIV/AIDS prevalence rates continue to climb.

A study for Save the Children UK examined food security interventions in seven case-

study areas in three countries in the Great Lakes region of central Africa: Burundi, the Democratic Republic of the Congo and Uganda (Levine and Chastre, 2004). The appropriateness of interventions to address the food security constraints faced by people in these areas was examined. Different types of crises were covered, from ongoing severe insecurity involving population displacement, to rural post-conflict environments marked by drought and an influx of returnees to urban settings affected by conflict or a natural disaster.

Levine and Chastre (2004) found that many, if not most, food security interventions failed to address the priority needs of people affected by crises. Agencies used the same narrow range of responses in nearly all circumstances; these approaches dealt with symptoms not causes, focused narrowly on food aid and food production and often were not cost-effective. Because of various pressures, organizations were unable to think through the appropriateness of responses, so that even where considerable information was available about the affected people and the ways their livelihoods had been disrupted, this was not factored into the response.

The study showed that seed and tool distributions occurred in all emergencies, yet it had never been established that targeted households' access to seeds or tools had hindered production. This had simply been deduced from the fact that many households did not produce an overall marketable surplus. Seed distributions and nutrition interventions were based on a series of dubious assumptions, primarily that the affected people were subsistence farmers disconnected from markets and broader livelihood strategies.

More appropriate in most cases would have been cash transfers to boost entitlements, and road reconstruction to improve security and market access. Unfortunately, donor funds for cash transfers were limited, and measures to improve the functioning of markets were rarely included in programming aimed at food security. Likewise, "non-relief" interventions were on a much smaller scale than was necessary to confront crisis conditions. This situation is characteristic of the broader failures of the funding for humanitarian interventions (see also Box 15 and Chapter 5).

According to Levine and Chastre (2004), although rapid assessment was shown to be possible in the Great Lakes region despite insecurity, such assessments were rarely done, and when they were done, they were neither adequately consulted by the responding agencies nor shared among agencies. Those designing the response often simply failed to question what the real needs were. More worrisome, most gave a low priority to learning lessons and finding out the impact of interventions.

Pottier (2003) studied the conflict in the Ituri region of the Democratic Republic of the Congo. Disputes between the Hema and Lendu people led to open conflict in 1999. Access to land and its rich resources was central to the conflict. Under the 1973 Bakajika land law and in return for political support, Hema elites had been allowed to acquire land that Lendu farmers considered ancestral and inalienable. The Hema established cattle ranches, many of which were encouraged by international aid projects during the 1980s. The rebel factions with which the Hema are associated now control the land's mineral wealth. Lendu agriculturalists have been reduced to squatters on their former lands, working as miners and performing other services under a variety of forced labour regimes (driven by the threat of eviction). Allegiance to warlords is changeable and induced more by poverty and food insecurity than by political beliefs.

Pottier argues that those involved in peace building and agricultural rehabilitation must examine the social dynamic that gives warlords their iron grip on the population. They need to look at land, institutionalized vulnerability, the resulting need for institutionalized protection and labour. The challenge is to plan for the removal of the conditions of insecurity that give warlords coercive leverage over so-called ethnic followers. In addition to measures to protect and stimulate the post-conflict resumption of local food markets, a commitment by agencies to land reform in Ituri would help to reverse the region's extremely high levels of livelihood and food insecurity and thus weaken this stranglehold.

BOX 14
The Nuba Mountains Programme Advancing Conflict Transformation

The Nuba Mountains have some of the Sudan's richest and most fertile rainfed areas. In the past, surplus food production was registered frequently. But the conflict between the Sudan People's Liberation Movement (SPLM) and the Government of the Sudan led to massive internal displacement, a total breakdown in the local production system and recurrent food insecurity.

Since the late 1980s the Nuba Mountains region has been divided between the government, controlling most of the farmland on the plains and the urban centres, and the SPLM, which controls the crowded hilltops. In government-controlled areas, people had access to external assistance, such as food relief, throughout the 1990s, while the government did not allow dissemination of external aid into the SPLM-controlled areas. Thus, external assistance largely stopped in 1999–2000, when a number of aid organizations withdrew from the region because they were unable to reach the people with greater needs in the SPLM areas. This situation led to the initiative of the Nuba Mountains Programme Advancing Conflict Transformation.

Humanitarian aid based on policy dialogue

A humanitarian response had to take into account the difficulty of operating in an environment where aid served as a weapon of war. Only a concerted effort based on policy dialogue between the belligerents and key external players could end the impasse regarding humanitarian assistance. A high degree of mistrust between the belligerents and the international organizations working on the two sides of the political divide required attention. To reduce the level of suspicion, and to develop the intervention for the region, the United Nations Resident Coordinator and Humanitarian Coordinator (UN RC/HC) initiated an intensive, year-long consultation process involving all potential programme partners. These included 9 UN agencies, 16 international NGOs, 24 national NGOs as well as the Government of the Sudan and the SPLM. The programme was aimed

Lessons learned regarding protracted and complex crises

These examples point to a number of particular challenges for addressing food insecurity in protracted crises, all of which have to do with responsiveness and international engagement in complex, fluid contexts.

Donors and implementing organizations routinely fail to "think beyond the box" of standardized interventions, usually decided on at a distance. There are shortcomings in information and early warning systems but, more fundamentally, the willingness to analyse and respond creatively to real needs and to monitor impacts and learn lessons seems to be missing. Agency interventions are usually based on experience gained in other environments (in many cases, natural disaster zones), and lessons from these experiences have tended to be uncritically applied to the situation at hand. Yet it is also the case that food insecurity encompasses a very diverse range of circumstances, which vary greatly between contexts and over time and cannot be adequately addressed using a narrow, standardized portfolio of policy responses.

Rigid, antiquated funding mechanisms make it almost impossible for the international humanitarian system to respond rapidly, flexibly and proportionately to complex and protracted emergencies. At an institutional level, humanitarian agencies are often unwilling or unable to appreciate that aid interventions in protracted crises inevitably have sociopolitical as well as technical and economic consequences, which can pervert intended benefits for affected populations. Neglect of this political dimension means that interventions can at best have mixed impacts, and at worst can

at enabling all stakeholders to engage and contribute to a Nuba-led response to address the short- and long-term needs of the Nuba Mountains' people.

Successes

- All parties have endorsed the programme. This is the only joint initiative the belligerents have signed while the conflict was still active.
- The programme was a key factor in the early phase of the Sudanese Cease-Fire Agreement.
- Partners invested significant resources in gaining a better understanding of the local food economy and identifying points of entry to strengthen it. This led to a strong sustainability focus and an emphasis on capacity building.
- Assistance is provided on the basis of need, prioritizing people in replacement camps and poor farmers.
- Land tenure issues have become part of the wider Sudan peace process.
- More use could be made of local purchases of food from the Nuba Mountains. Food aid should be limited to areas of extreme need, where cultivation is not possible.
- A dedicated coordination structure facilitated greater efficiency of assistance through information-sharing and mainstreaming of approaches.

Lessons to be learned

This type of framework can incorporate long-term perspectives into an emergency context through engagement of all parties and emphasis on national ownership, participatory development vis-à-vis programme design and decision-making and collective advocacy. In this way, it is possible to break the pattern of traditional externally driven responses to food insecurity, and to adopt approaches concentrating on capacity building, sustainable agriculture and market revitalization, alongside conflict transformation and peace building.

Source: Pantuliano, 2005.

exacerbate the plight of the most food-insecure people.

The progress made in humanitarian response, discussed earlier in this chapter in the context of sudden-onset emergencies, has sparked major improvements over the past decade in conditions within camps for refugees and internally displaced persons. Nevertheless, there remains a significant policy gap in addressing the needs of people affected by complex emergencies.

Conclusions

The global humanitarian community has developed an extensive experiential base for responding effectively to transitory food insecurity associated with emergencies, though it is less able to deal with slow-onset crises, particularly those that are silent, low-profile, complex or protracted. As cases such as the December 2004 tsunami vividly illustrate, humanitarian agencies can respond with impressive timeliness and skill when they have the resources to do so.

Food aid is often a key element of a rapid-response portfolio. Well-targeted and well-timed emergency food-aid interventions are vital for boosting short-term food availability and improving access for those in immediate need. However, such interventions are relatively expensive and prone to procurement and logistical delays, and if not well timed and well targeted they may have adverse production, market and livelihood impacts.

It is possible that, with the right kind of support early in an emerging crisis, many who become dependent on food aid might have avoided needing it in the first place, or might be able to recover their livelihoods

BOX 15
Chronically underfunded crises

There are gross inequities in the way humanitarian funds are raised and applied. The situation in the Democratic Republic of the Congo in particular is characteristic of such an imbalance. Despite the horrendous toll of the conflict there, the UN consolidated appeal for $212 million for the Democratic Republic of the Congo in 2005 managed to raise only 51 percent of the required amount. The response to the 2006 Action Plan, which requested $681 million to address humanitarian, recovery and poverty reduction needs, had garnered only $30 million, or 4 percent, by mid-May 2006.

Humanitarian aid flows have been inconsistent and unpredictable over time for other crises as well. While the humanitarian crisis in the Sudan received 75 percent of its funding requirements in 2004, it only received half in 2005, and less than 20 percent in 2006 at mid-year. Such downward trends are threatening the viability of humanitarian activities as humanitarian organizations have commitments and obligations that they are unable to underwrite. The chronic underfunding of certain sectors has also led to the erosion of capacity and a decline in the quality of assistance.

Humanitarian aid flows are imbalanced for a variety of reasons: lack of media profile, strategic/economic interests, weak political will, differences in social values or a perception by donors that their contributions will be squandered. Whatever the motive, the result is a "humanitarian lottery" that dictates that needy people in the Democratic Republic of the Congo received about $100 of relief assistance per person in 2005, while the victims of the Asian tsunami received more than ten times that amount.

Source: ECOSOC, 2006.

and reduce their need for food aid more quickly. Meanwhile, others who are food insecure but beyond the reach of food aid due to resource and logistical constraints might avoid starvation and ill health.

Although often necessary, food aid is often not the most appropriate response and it is never the only needed response. Food aid tends to be overused because it is the most readily available resource and because it is what donors and agencies know how to do. Much more attention needs to be paid to information, analysis and monitoring systems aimed at assessing the real, priority needs of the affected people and learning lessons about what works and what does not. Effective emergency response must be supported by flexible resources, sufficient and proportionate to the problem.

This chapter identified policy gaps that hinder effective response to humanitarian emergencies. The following chapter considers these policy gaps in more detail, particularly in complex and protracted emergencies, and offers some insights for bridging them.

5. Policy gaps in complex emergencies

Crisis interventions in the realm of food security tend to reflect a narrow range of responses dominated by the provision of food aid and agricultural inputs. As protracted crises become more apparent and emergency trends more predictable, the limitations of standard responses raise new questions. How can food security responses be strengthened to address the underlying causes of chronic and protracted crises? When is food aid required and how does it complement other interventions? Is there a balance between the ideal crisis response and the reality, in which political, security and timing factors may sometimes prevail?

In answering these questions, policy gaps emerge on many levels. For donors and international agencies, the challenge in responding to long-term emergency trends reveals gaps in the area of decision-making and response. Donors and international agencies pay insufficient attention to distinguishing appropriate responses in crisis, with interventions tending to address the symptoms rather than underlying causes.

Policy gaps in decision-making and response are caused by a range of factors. Information in a crisis is often fragmented, lacks comparability and is not used in a strategic way (Maxwell and Watkins, 2003). Programme responses tend to be guided by one-off needs assessments driven by resource availability and agency capacities, without linkage to ongoing monitoring, evaluation and impact assessment (Darcy and Hofmann, 2003). Funding for complex emergencies is inconsistent and unpredictable, with a bias towards short-term programming.

Programme innovations are therefore required to ensure that decision-making and response mechanisms address immediate as well as longer-term priorities. Improving existing assessment tools and ensuring common terms, definitions and frameworks for analysing food security is part of the answer. Further effort is also required to address institutional shortcomings at the national and international levels.

Policy gaps

In recent years, concern has increased about the scope and nature of international response in complex emergencies (Pingali, Alinovi and Sutton, 2005). Crises that stretch into the longer term demand responses with an extensive planning horizon, which must also be adapted to diverse circumstances. Yet there is little in the way of established good practice in this regard.

Recent trends have led to a resurgence of interest in what has been recognized for some time as an intensely problematic interface between the humanitarian and development spheres of aid intervention in complex emergencies and protracted crises. There are signs that these two domains, hitherto with separate institutional, funding and staffing arrangements, as well as distinct aims and principles, are showing a capacity for convergence.

The food-security policy gap can be seen as an aspect of this "humanitarian–development divide", the bridging of which has long been a subject of debate among practitioners and analysts concerned with disasters and emergencies (Flores, Khwaja and White, 2005). To meet this challenge different policy frameworks have been devised (e.g. European Commission [EC] Linking Relief to Rehabilitation and Development and the FAO Twin-Track Approach).

Donors and international agencies find it difficult to agree on the relative scale and severity of a given crisis, to determine the point at which a crisis becomes "critical" and to decide whether interventions are required for transitory needs, chronic factors or both (ODI, 2005a). The case study of the recent response to the Greater Horn of Africa

(Box 13 in the previous chapter) illustrates these challenges in the context of complex emergency situations (ODI, 2006).

What is most striking in the case study is the degree to which the link between chronic and transitory needs appears to be compromised, with a resulting set of policy interventions that seem inconsistent with the scale of conflict and institutional breakdown in the region. Another notable feature is the perceived lateness of the international community in responding to the crisis, despite the predictions from early warning and assessment information. Related to this is the strong bias of funding towards the "food aid" sector alone, an issue that is addressed below.

Challenges in decision-making and response

The policy gaps in decision-making and response stem from a range of diverse factors. This chapter concerns itself with just three critical areas: information use, needs assessment and the nature of financing for complex emergencies. These issues are explored in further detail, with potential solutions to improve programme responses later explored.

Strategic information use

As emergencies increase in frequency and severity, and the distinction between transitory and chronic crises becomes more difficult to distinguish, demands for improved humanitarian information use have proliferated (Maxwell and Watkins, 2003). Recognizing this trend, a broad range of initiatives have focused on improving the data available to decision-makers to address new conceptions of relations between relief and development and to distinguish between acute and chronic vulnerability: the Global Information and Early Warning System (GIEWS); the Food Insecurity and Vulnerability Mapping System (FIVIMS); the Humanitarian Information Centres of the Office for the Coordination of Humanitarian Affairs (OCHA) and Web-based information sharing platforms such as Relief Web.

A range of information-related problems persist, which highlight the degree to which decision-making sometimes takes place in the absence of crucial information, which should be the basis for clear understanding of the underlying nature of a crisis and its effective response.

The comparability and credibility of information is an important concern. The lack of system-wide information management standards, systems and indicators is a constraint in supporting operational and strategic planning requirements. This arises particularly where a range of sectoral information is required (e.g. nutrition, water and sanitation, protection) but competing information lacks interoperability. Information overload and fragmentation often result, and may actually increase uncertainty in decision-making in humanitarian work (Currion, 2006; UNOCHA, 2002). Strategic information dissemination (e.g. targeted information channels, manageable formats) tailored to a range of information users (e.g. donors, media and private sector) is critical.

The link between information and programming response is a related issue. For example, a question raised in the context of the humanitarian crisis in the Niger relates to the manner in which information was interpreted, and the subsequent analysis of response options informing decision-making (ODI, 2005b). In the case of the Niger in 2005, it has been argued that the rationale for the food security strategy undertaken – subsidized cereal sales, cereal banks, food and cash for work, subsidized fodder provision and curative and preventive veterinary care – was not analysed or adequately monitored, despite the availability of information that might have indicated that such a response was unsuited to the needs of the target population.

Needs assessment

An area of significant controversy relates to the degree to which needs assessment processes have tended to guide programme responses in crisis situations. The reliability and objectivity of agency assessment processes have been widely debated. As Darcy and Hofmann (2003, p. 16) assert, "*needs assessment is often conflated with the formulation of responses, in ways that can lead to resource-led intervention and close down other (perhaps more appropriate) forms of intervention*". Standard needs-

based approaches have therefore become associated with supply-driven analysis of requirements, with front-loaded assessments failing to capture the changing nature of needs and risks as crises evolve.

From the food security perspective, the controversies surrounding needs assessment raise a number of concerns. Needs assessments are rarely the product of intersectoral analyses, and more often than not reflect individual agency expertise and institutional priorities. The link between needs assessment and effective programming has therefore been tenuous. Assessment processes have remained ad hoc and difficult to compare and analyse.

Within the broad field of "humanitarian assessments" there are a number of different concepts and terms that are easily confused, but conceptually distinct, including Emergency Food Needs Assessment (EFNA), Emergency Food Security Assessment (EFSA) and Emergency Needs Assessment (ENA) (Haan, Majid and Darcy, 2006). In this context, coordination between relevant agencies and decision-makers has not been strong and therefore evidence-based approaches have not been favored. This has created a climate of mistrust and introduced biases in the way in which needs are assessed and responded to (Darcy and Hofmann, 2003).

Particularly in the context of food aid, humanitarian assessments have been criticized for the practice of incorporating assessments into emergency appeals. In 2003 WFP set out to address these concerns through the Strengthening Emergency Needs Assessment Capacity (SENAC) project. The progress and continued work of SENAC deserves special attention and is outlined in Box 16.

BOX 16
WFP and the project for Strengthening Emergency Needs Assessment Capacity

The reliability and objectivity of needs assessments has come into sharp focus. In the case of WFP, particular criticisms have been levied against the practice of incorporating assessments into emergency appeals, which risks to create distortions in the way information is presented, and in particular, overstressing of the importance of food aid while neglecting alternative ways of restoring livelihoods both after and during an emergency. These concerns were especially expressed in response to WFP's assessments of food needs arising from the southern Africa food crisis in 2002.

Consequently, in 2004 the WFP Executive Board approved a policy and a 30-month implementation plan to strengthen WFP's emergency needs assessment capacity. The Strengthening Emergency Needs Assessment Capacity (SENAC) project aims to reinforce WFP's ability to assess humanitarian needs in the food sector during emergencies through more accurate and impartial needs assessments.

Specifically, SENAC aims to: (i) improve WFP's accountability and transparency on Emergency Food Security Assessments; (ii) produce and test better assessment methods and guidance; (iii) improve the availability and management of pre-crisis information in countries exposed to recurrent and protracted emergencies; and (iv) strengthen WFP's field capacity by deploying assessment specialists in its six regional bureaus.

The SENAC project is guided by a steering committee comprised of donor representatives, and by an international advisory group of food security experts representing academia, FAO and other UN agencies, the World Bank and NGO partners. To date the work has resulted in the generation of preliminary guidelines for Emergency Food Security Assessment, the preparation of desk studies on a number of food security and assessment-related topics, the conduct of pre-crisis baseline surveys and inputs to food-security monitoring systems in several countries. These efforts will continue in 2007 and be mainstreamed in 2008.

Source: WFP, 2005b.

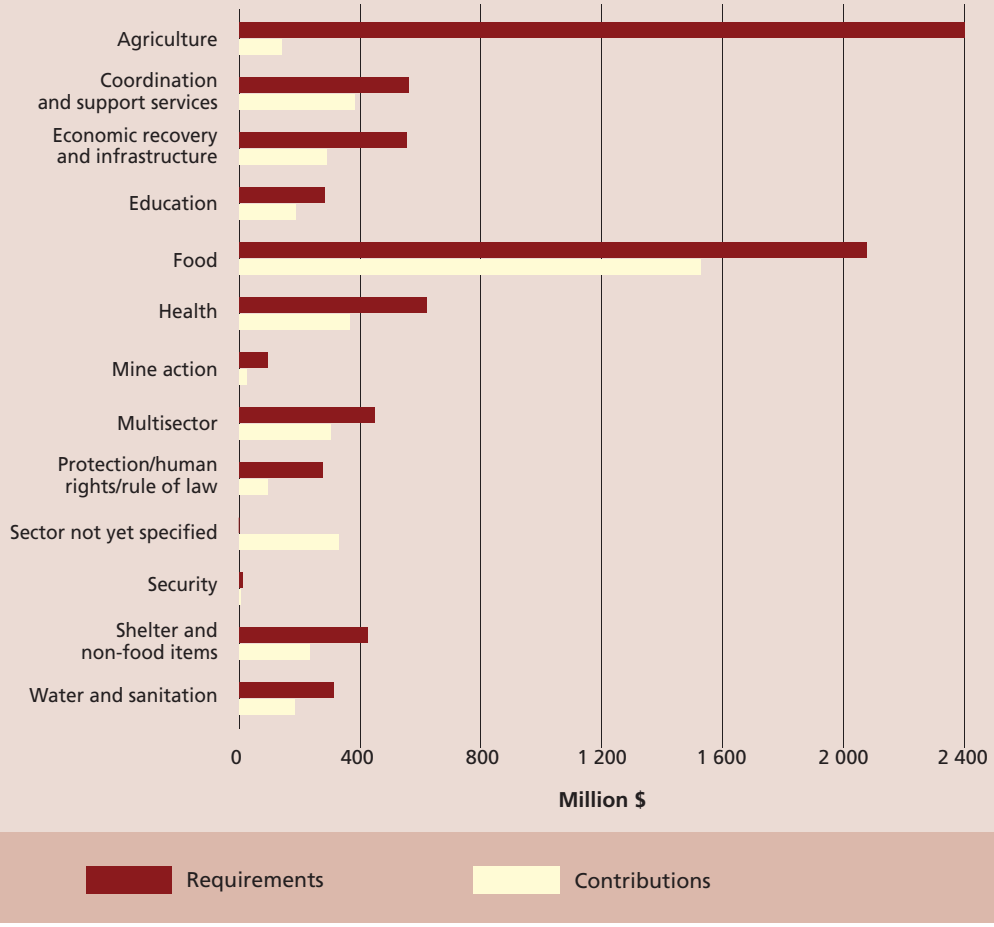
Financing for complex emergencies

The structure of humanitarian financing is a limiting factor in decision-making and response, and cannot be divorced from the capacity of agencies to support early recovery and development efforts.

As noted in the previous chapter (see Box 15), financing trends for complex emergencies are marked by low and unpredictable funding levels, which can vary across different crises and the various sectors (e.g. logistics, health, nutrition). The United Nations Consolidated Appeals Process (CAP) is a mechanism aimed at streamlining the approach taken by UN institutions and their partners in appealing for funding for emergency relief operations. Since its establishment in the 1990s, an average of 60 percent of the total figure requested has been met by donors, with the share for food aid within the consolidated appeals process being typically much higher (Webb, 2003). During 1994–2001 the donor response to WFP's food aid request within the UN CAP was on average 85 percent, compared with only 58 percent for all other sectors combined (UNOCHA, 2002). This trend is further highlighted in Figure 10, which details global CAP requirements and pledges in 2005 across main sectors based on figures provided by the Financial Tracking Service of UNOCHA.

Recent trends show mixed progress in breaking this cycle of underfunding. In 2003, the Good Humanitarian Donorship (GHD) initiative marked a commitment among donors to improve funding practice in humanitarian emergencies. A central part of the GHD initiative included an effort to "allocate humanitarian funding in proportion to needs and on the basis of needs assessment". At that time,

FIGURE 10
Funding requirements and contributions



Source: UNOCHA Financial Tracking Service.

humanitarian assistance had reached 10 percent of overall development assistance, which had stabilized to approximately €5.7 billion between 1999 and 2002 (ECOSOC, 2006).

While the GHD has helped to promote good donor practice, it has yet to have a substantial impact on the flow of funds towards underfunded crises or sectors (ECOSOC, 2006). During 2003–2005, humanitarian assistance increased by more than €2billion in two consecutive years; however, the bulk of increased assistance has gone towards large-scale disasters including those in Afghanistan, Iraq and tsunami-affected countries (ECOSOC, 2006). More recent reforms of the Central Emergency Response Fund (CERF) are noteworthy, and are returned to later.

While the disproportionate funding is sometimes attributed to "compassion fatigue" or the "CNN effect", a number of political and economic factors also come into play. Financing for complex emergencies is compromised by short-term funding horizons in donor budgets, and the earmarking of donor funds for specific UN or other international agencies (Levine and Chastre, 2004). In practice, this impedes long-term planning, which is increasingly required as agencies move to professionalize and strengthen organizational capacity. It also drives an increasingly competitive aid environment, where UN agencies and international actors chase down limited resources, often for contrasting sets of interventions including normative analysis, leadership, coordination and service delivery (Dalton *et al*., 2003).

Furthermore, the sectoral bias of funding has also been attributed to shortcomings within the UN system (Smillie and Minnear, 2003; Darcy and Hofmann, 2003). As discussed previously, the presentation of analysis and prioritization of response has rarely compelled donor agencies to adjust funding. Similarly, coordination between agencies and other international actors has often been ineffective, with leadership from the UN Resident/Humanitarian Coordinator and local authorities also lacking. Finally, the respective response capacities of different agencies also vary, which encourages the repeated mobilization of resources around tried and tested interventions. These factors have converged to perpetuate a bias towards more tangible and fungible responses to meet immediate needs.

Improving decision-making and response

To improve decision-making and response, a range of innovations are required to strengthen analysis and assessment and address institutional limitations at the national and international levels. Strategies to achieve this will now be explored in closer detail, drawing in particular from country-based and interagency experiences.

Linking information to action: role of analysis

As discussed previously, decision-making often takes place in the absence of crucial information – information that should instead provide the basis to understand the underlying nature of a crisis and to plan an effective response.

Improved analysis is required, with a focus on the following areas:

- *Technical consensus and a common language.* Already, a range of initiatives exist to standardize core elements of humanitarian analysis and response, e.g. the Standardized Monitoring and Assessment of Relief and Transitions (SMART), CAP Needs Analysis Framework and the Sphere Project, a humanitarian charter seeking to establish minimum standards in humanitarian response. Improved analytical approaches for food security are required to ensure common terms, definitions and frameworks. Particular clarification is required to classify and compare the severity of diverse food-security scenarios and their impacts.
- *Evidence-based approach.* There is also a need to ensure that responses are based on an evidence of need. This entails comparability and credibility of existing baseline and early warning information, and the willingness of agencies and donors to support more transparent response protocols.
- *Strategic responses*. The menu of possible interventions for mitigating a crisis needs to be fully considered,

rather than resorting to a supply-side-driven response. The possible criteria that might determine the appropriateness of a response are often overlooked.

The increased scope for normative analysis is limited in humanitarian response, because resources are more often prioritized for assessment and evaluation of impact (ODI, 2005a). It has been suggested that the lack of a common basis for measuring and comparing levels of need presents a major stumbling block to prioritization, impartial decision-making and accountability. This applies particularly in chronic crises, where the risk of institutional or state incapacity is often evident well before a crisis emerges, yet the mobilization of responses only emerges during extreme scenarios. A more holistic problem analysis that identifies structural issues associated with chronic food insecurity is therefore required.

In this regard, an integrated overall understanding of livelihoods has been the most significant change in food security analysis in recent years. However, this still presents many challenges (Maxwell, 2006). Although the basic asset categories and most of the dominant livelihood-strategy categories are now well known, more recent attention has focused on understanding the vulnerability context, and the institutional and policy constraints to livelihoods.

In meeting these challenges, the Integrated Humanitarian and Food Security Phase Classification (IPC), developed by FAO in Somalia but in wide usage in the drought crisis of the Greater Horn of Africa, is increasingly recognized as a significant attempt to draw multiple sources of information into a single analysis of food security and humanitarian needs (FAO, 2006f). As argued by Maxwell (2006), and elaborated in the case study below, the application of this tool highlights how far the humanitarian and food security sector has to go to achieve a "gold standard" with regard to indicators, analysis and definitions – but it marks a step in the right direction.

The IPC is a standardized scale that integrates food security, nutrition and livelihood information into a clear statement about the severity of a crisis and the implications for humanitarian response. The IPC Reference Table (Figure 11) provides details of the main phase categories: (1) generally food secure; (2) chronically food insecure; (3) acute food and livelihood crisis; (4) humanitarian emergency; and (5) famine/humanitarian catastrophe. A comprehensive set of reference outcomes on human welfare and livelihoods are associated with each phase. These are based on international standards and criteria to ensure robustness and comparability, and include:

- *Analysis templates:* to organize key pieces of information in a transparent manner and facilitate analysis for substantiating a phase classification and guiding response.
- *Cartographic protocols:* a set of standardized mapping and visual communication tools, which effectively convey key information concerning situation analysis in a single map.
- *Population tables*: to communicate population estimates consistently and effectively by administrative boundaries, livelihood systems and livelihood zones.

The IPC summarizes a situation analysis, which is a distinct yet often overlooked stage in food security analysis. Situational analysis is the basis for identifying fundamental aspects of a situation (e.g. severity, causes, magnitude). Ideally, the analysis is backed by a broad-based consensus among key stakeholders including governments, UN agencies and NGOs, donors, the media and target communities.

For example, Figure 12 includes a visual representation of the IPC classification system based on the FSAU's recent food security projection for the period following the 2005/06 Deyr season (the short and less reliable rainy season, from October to January). The map brings unique aspects of the IPC for food security situation analysis into focus.

Key aspects highlighted in the map include:

- *Severity.* The IPC includes the complete spectrum of food security situations – from general food security to famine. It emphasizes the need for food security interventions during all phases, not just when an emergency breaks out. The inclusion of the Acute Food and Livelihood Crisis (Phase 3) underlines the importance of understanding livelihood dynamics and their links to food security.

- *Geographic coverage.* The livelihood zone is the IPC's core unit for spatial analysis. An analysis of livelihood zones allows for a better understanding of how people within a given livelihood system typically derive their food and income, and what their expenditure patterns and coping strategies are. Livelihood assets such as the Key Reference characteristic are accounted for, and highlight how livelihood endowments interact with institutions to enable (or undermine) livelihoods.
- *Immediate and proximate causes*. The attributes of a given crisis are defined based on an understanding of hazards, vulnerabilities and underlying causes. In particular, the framework incorporates risk, which indicates the probability of a hazard event, exposure and specific vulnerabilities of livelihood systems.
- *Projected trends/scenarios.* While the phase classification describes the current or imminent situation for a given area, early warning levels are used as a predictive tool for communicating the risk of a worsening phase.

The operational value of the IPC lies not only in providing criteria for a consistent situation analysis, but also in explicitly linking that evaluation to appropriate responses which build on the FAO Twin-Track approach and other frameworks.

Currently, both FAO and WFP are working to integrate elements of the IPC into joint work in the food security component of the CAP Needs Analysis Framework (NAF), a tool to help humanitarian coordinators and country teams organize and present existing information on humanitarian needs in a coherent and consistent manner.

Improving needs assessment

As discussed previously, concern with needs assessment practices has focused on integrating assessment as part of an ongoing response linked to different stages of the project cycle, rather than as a front-loaded activity designed to justify one-off funding proposals. A key issue is how the function of needs assessment can be strengthened to inform decision-making processes, for example in determining whether to intervene, the nature and scale of the intervention, prioritization and allocation of resources and programme design and planning (Darcy and Hofmann, 2003).

Based on these experiences, the following priorities can be extracted:

- *Integrating needs assessment into ongoing processes*. Needs assessment should be contextualized as part of a continuous process. This brings into focus the role of existing early warning and baseline information systems, as well as possible links to food security monitoring and evaluation. Maxwell and Watkins (2003) address these concerns by linking EFSA to the broader food security information and analysis system. Such a system has a number of precursor and follow-up components to the EFSA process itself, which occurs on an ad hoc basis as required. The precursor components add technical rigour and efficiency to the EFSA, whereas the follow-up components link EFSA to programme implementations, including design, advocacy and exit strategy (Haan, Majid and Darcy, 2006).
- *Interagency and joint collaborations.* The changing nature of needs assessment activities points to increasing scope for interagency and joint assessments to agree on existing needs and to identify priority responses across sectors. An example of coordinated planning is the CAP NAF, a tool to help UN agencies organize and present existing information on humanitarian needs in a coherent and consistent manner. Starting in 2005, FAO and WFP have collaborated on a joint strategy to support the food security section of the CAP NAF (UNOCHA, 2006). This has been operationalized at global, regional and country levels and has involved the development of a common approach to food security needs assessment and response in CAP countries.

Key innovations in this approach have included an extension and improvement of the scope of food security needs assessment, including: (i) improved situation analysis; (ii) response options analysis; and (iii) monitoring and evaluation. In particular, the attempt to include a component on response options analysis is a novel development and reflects the need to

FIGURE 11
Integrated Food Security and Humanitarian Phase Classification Reference Table

PHASE CLASSIFICATION		KEY REFERENCE OUTCOMES (Current or imminent outcomes on lives and livelihoods; based on convergence of evidence)	
1	GENERALLY FOOD SECURE	**Crude mortality rate**	<0.5/10 000/day
		Acute malnutrition	<3% (w/h <-2 z-scores)
		Stunting	<20% (h/age <-2 z-scores)
		Food access/availability	Usually adequate (>2 100 kcal ppp day[1]), stable
		Dietary diversity	Consistent quality and quantity of diversity
		Water access/availability	Usually adequate (> 15 litres ppp day), stable
		Hazards	Moderate to low probability and vulnerability
		Civil security	Prevailing and structural peace
		Livelihood assets	Generally sustainable utilization (of 5 capitals)
2	CHRONICALLY FOOD INSECURE	**Crude mortality rate**	<0.5/10 000/day; U5MR[2]<1/10 000/day
		Acute malnutrition	>3% but <10% (w/h <-2 z-score), usual range, stable
		Stunting	>20% (h/age <-2 z-scores)
		Food access/availability	Borderline adequate (2 100 kcal ppp day); unstable
		Dietary diversity	Chronic dietary diversity deficit
		Water access/availability	Borderline adequate (15 litres ppp day); unstable
		Hazards	Recurrent, with high livelihood vulnerability
		Civil security	Unstable; disruptive tension
		Coping	"Insurance strategies"
		Livelihood assets	Stressed and unsustainable utilization (of 5 capitals)
		Structural	Pronounced underlying hindrances to food security
3	ACUTE FOOD AND LIVELIHOOD CRISIS	**Crude mortality rate**	0.5-1/10 000/day, U5MR 1–2/10 000/day
		Acute malnutrition	10-15% (w/h <-2 z-score), >than usual, increasing
		Disease	Epidemic; increasing
		Food access/availability	Lack of entitlement; 2 100 kcal ppp day via asset stripping
		Dietary diversity	Acute dietary diversity deficit
		Water access/availability	7.5–15 litres ppp day, accessed via asset stripping
		Destitution/displacement	Emerging; diffuse
		Civil security	Limited spread, low-intensity conflict
		Coping	"Crisis strategies"; CSI[3] > than reference; increasing
		Livelihood assets	Accelerated and critical depletion or loss of access
4	HUMANITARIAN EMERGENCY	**Crude mortality rate**	1–2 /10 000/day, >2x reference rate, increasing; U5MR >2/10 000/day
		Acute malnutrition	>15% (w/h <-2 z-score), >than usual, increasing
		Disease	Pandemic
		Food access/availability	Severe entitlement gap; unable to meet 2 100 kcal ppp day
		Dietary diversity	Regularly 2–3 or fewer main food groups consumed
		Water access/availability	<7.5 litres ppp day (human usage only)
		Destitution/displacement	Concentrated; increasing
		Civil security	Widespread, high-intensity conflict
		Coping	"Distress strategies"; CSI significantly > than reference
		Livelihood assets	Near complete & irreversible depletion or loss of access
5	FAMINE/ HUMANITARIAN CATASTROPHE	**Crude mortality rate**	>2/10 000/day (example: 6 000 /1 000 000/30 days)
		Acute malnutrition	>30% (w/h <-2 z-score)
		Disease	Pandemic
		Food access/availability	Extreme entitlement gap; much below 2 100 kcal ppp day
		Water access/availability	<4 litres ppp day (human usage only)
		Destitution/displacement	Large-scale, concentrated
		Civil security	Widespread, high-intensity conflict
		Livelihood assets	Effectively complete loss; collapse

STRATEGIC RESPONSE FRAMEWORK
(Mitigate immediate outcomes, support livelihoods and address underlying/structural causes)

- Strategic assistance to pockets of food insecure groups
- Investment in food and economic production systems
- Enable development of livelihood systems based on principles of sustainability, justice, and equity
- Prevent emergence of structural hindrances to food security
- Advocacy

- Design & implement strategies to increase stability, resistance and resilience of livelihood systems, thus reducing risk
- Provision of "safety nets" to high-risk groups
- Interventions for optimal and sustainable use of livelihood assets
- Create contingency plan
- Redress structural hindrances to food security
- Close monitoring of relevant outcome and process indicators
- Advocacy

- Support livelihoods and protect vulnerable groups
- Strategic and complementary interventions to immediately raise food access/availability AND support livelihoods
- Selected provision of complementary sectoral support (e.g., water, shelter, sanitation, health, etc.)
- Strategic interventions at community to national levels to create, stabilize, rehabilitate or protect priority livelihood assets
- Create or implement contingency plan
- Close monitoring of relevant outcome and process indicators
- Use "crisis as opportunity" to redress underlying structural causes
- Advocacy

- Urgent protection of vulnerable groups
- Urgently raise food access through complementary interventions
- Selected provision of complementary sectoral support (e.g., water, shelter, sanitation, health, etc.)
- Protection against complete livelihood asset loss and/oradvocacy for access
- Close monitoring of relevant outcome and process indicators
- Use "crisis as opportunity" to redress underlying structural causes
- Advocacy

- Critically urgent protection of human lives and vulnerable groups
- Comprehensive assistance with basic needs (e.g. food, water, shelter, sanitation, health, etc.)
- Immediate policy/legal revisions where necessary
- Negotiations with varied political-economic interests
- Use "crisis as opportunity" to redress underlying structural causes
- Advocacy

link assessment and programming more thoroughly.

UN agencies are also increasingly working together to conduct joint assessments, with the goal of identifying the "basket" of interrelated sectoral needs in crisis response. For example, since 2003, FAO and WFP have jointly taken steps to improve the process and methodology of Crop and Food Supply Assessments (CFSAMs) to include a joint critical review, technical discussions, consultancies and workshops with interested partners. Since early 2004, CFSAMS have routinely included "observers" from donor agencies to increase the transparency and understanding of the process. There are possible drawbacks to such modes of collaboration, in that "all-in-one" assessment approaches may dilute methodological rigour and sectoral analysis. Therefore, assessments should bear in mind the need for close coordination, but with distinct sectoral analysis to ensure the technical integrity of sectors as well as maximum coordination (Haan, Majid and Darcy, 2006; Darcy and Hofmann, 2003).

Strengthening institutional capacity and leadership

Institutional capacity and leadership needs to be supported to promote food security priorities in strategic response. At the international, national and regional levels, this means focusing on ensuring that the wider dimensions of food security are incorporated into policy and programming activities.

International level

Over the past few years, there has been growing concern regarding the capacity of the international community to meet the basic needs of affected populations in a timely and predictable manner during crisis (UNOCHA, 2005). From the food security perspective, the debate has pointed to serious shortfalls in humanitarian coordination and capacity. The integration of food security, nutrition and livelihoods within the humanitarian sector reveals an unclear mix of priorities, as well as of capacities. Allied to this is the reality that UN and international agencies exhibit a low level of preparedness in terms of human resource and sectoral capacities.

FIGURE 11 *(cont.)*
Integrated Food Security and Humanitarian Phase Classification Reference Table

EARLY WARNING LEVELS	PROBABILITY LIKELIHOOD (of worsening phase)	SEVERITY (of worsening phase)	REFERENCE HAZARDS AND VULNERABILITIES	IMPLICATIONS FOR ACTION
ALERT	As yet unclear	Not applicable	**Hazard:** occurrence of, or predicted event stressing livelihoods; with low or uncertain vulnerability **Process indicators:** small negative change from normal	Close monitoring and analysis
MODERATE RISK	Elevated probability/likelihood	Specified by predicted phase class, and as indicated by colour of diagonal lines on map.	**Hazard:** occurrence of, or predicted event stressing livelihoods; with moderate vulnerability **Process indicators:** large negative change from normal	Close monitoring and analysis Contingency planning Step-up current phase interventions
HIGH RISK	High probability; "more likely than not"		**Hazard:** occurrence of, or strongly predicted major event stressing livelihoods; with high vulnerability **Process indicators:** large and compounding negative changes	Preventative interventions–with increased urgency for high risk populations Advocacy

[1] Per person per day.
[2] Under-five mortality rate.
[3] Coping strategy index.

Source: FAO/FSAU, 2006.

As outlined in Box 17, the ongoing UN humanitarian reform process is designed to address some of these challenges by improving the predictability, accountability and effectiveness of crisis response. The main dimensions of the reform process aim to strengthen response capacity, coordination and funding mechanisms. A range of complementary initiatives are in progress, focused on benchmarking standards, definitions and common funding at the country level (ODI, 2005a).

The emerging architecture for humanitarian reform focuses heavily on managerial and technical aspects, priorities that have been strongly promoted by donors through the Good Humanitarian Donorship (GHD) approach. Although still in an embryonic stage, a number of early lessons can be identified relating to food security and protracted crisis. In terms of improving effectiveness, systematic capacity gaps have been identified through the cluster approach. This includes nine sectors with delegated leaders covering: water sanitation and nutrition (UNICEF); shelter in natural disasters (International Federation of Red Cross and Red Crescent Societies [IFRC]); shelter and camp management in conflict and protection (United Nations High Commissioner for Refugees [UNHCR]); health (WHO); logistics (WFP); and early recovery (United Nations Development Programme [UNDP]).

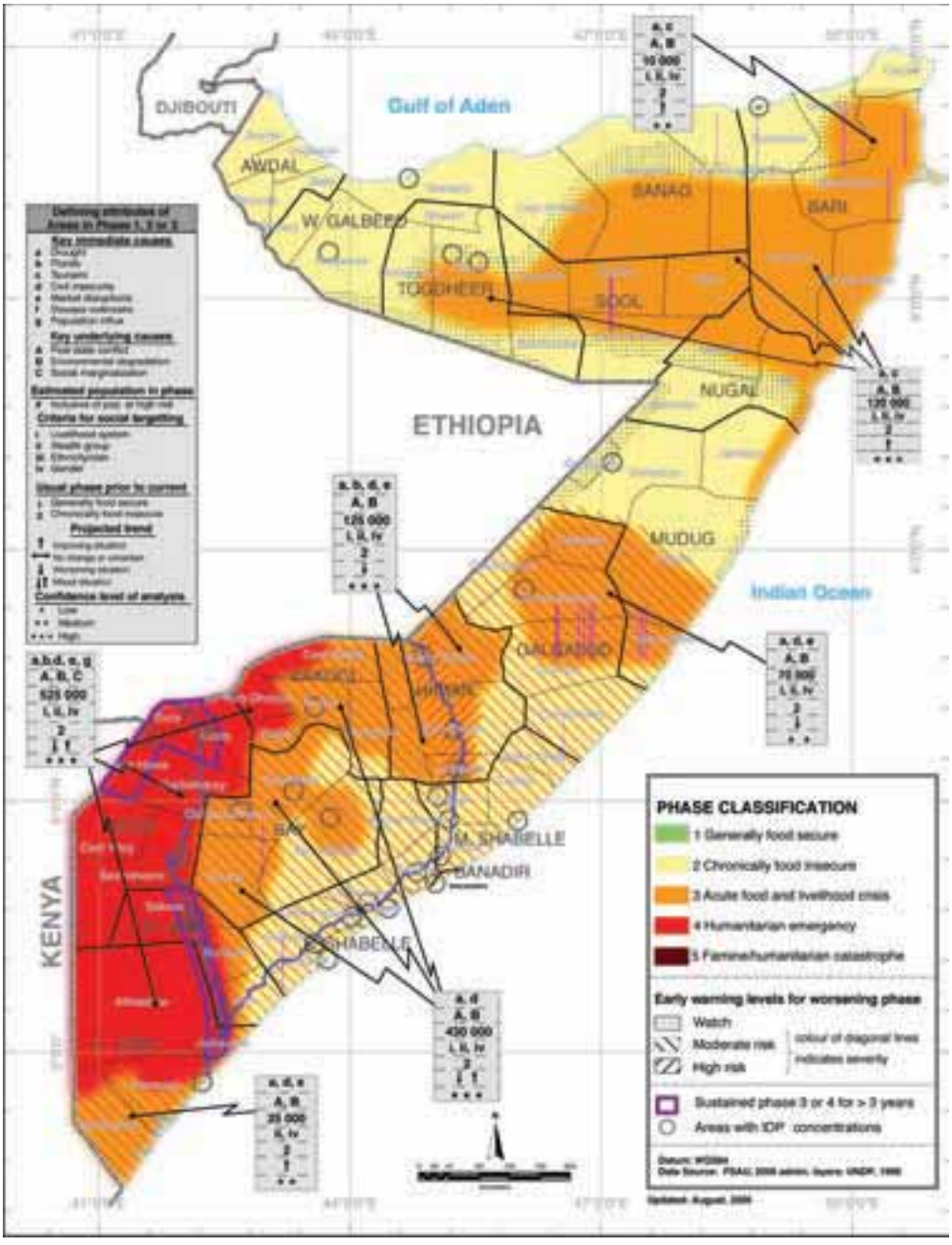
Experiences from the earthquake response in Pakistan raise questions as to whether or not the clusters have exacerbated interagency competition, and the degree to which further involvement from non-UN and local actors is deepened (ODI, 2005a; ActionAid, 2006b). The incorporation of livelihoods and exit strategies – critical in the area of food security – remains less clear.

Regarding the predictability of financing, the CERF approach is recognized as a positive development in improving global humanitarian response, particularly given its emphasis on expanding rapid-response mechanisms and focusing on neglected crises (ODI, 2005a; Oxfam, 2005). However, a number of outstanding questions remain about the financial implications of CERF, given that it represents a small fraction of the funding available for humanitarian response and may not address further underlying problems related to the accuracy of analysis and capacity constraints.

National and regional levels

At the national and regional levels, greater efforts can be employed to support policy and programming frameworks so that food security objectives are incorporated into national poverty reduction strategies.

FIGURE 12
Somalia situation analysis, post-Deyr 2005/06 projection, January 2006



Note: Estimated populations do not include internally displaced person (IDP) or urban estimates and are rounded to the nearest 10 000.
For category explanations see http://www.fsausomali.org.
The regional and district boundaries reflect those endorsed by the Government of the Republic of Somalia in 1986.

Source: FAO/FSAU, 2006.

BOX 17
UN humanitarian reform, 2005

In 2005, Member States endorsed a set of improvements to the humanitarian system designed to enhance the predictability, accountability and effectiveness of humanitarian response. Based on the guidance of the Emergency Relief Coordinator together with humanitarian partners, the initiatives resulted in a Humanitarian Response Review, which recommended the following:

1. **Strengthening humanitarian response capacity** through the cluster approach. Each cluster has a designated lead, working in an area of humanitarian response in which gaps in response have been identified. Clusters are organized at both the field and global levels.
2. **Strengthening the humanitarian coordination system**. This requires engaging the broader humanitarian community, strengthening the capacity and knowledge base of humanitarian coordinators and improving the overall coordinator system.
3. **Ensuring predictable funding through the Central Emergency Response Fund** (CERF). The goal of the fund is to provide aid workers with sufficient funding within 72 hours to jump-start lifesaving relief operations when the most lives are on the line. The CERF grant facility will be funded from additional voluntary contributions with a target of $500 million.

Source: UNOCHA, 2005.

Since 2005, both FAO and the EC have been working to support such strategies through the EC FAO Information for Action Programme, which is currently focused on 20 countries in chronic, transitory and transition contexts.

The programme entry point is to support policy and programming frameworks to move beyond a classical approach to information generation and analysis, which tends to be sectoral and poorly linked to decision-making processes, and to ensure the generation of programming and policy outputs relevant to diverse contexts. This typically takes place against a backdrop of absent or weak state institutions and the prevalence of repeatedly mobilized short-term interventions.

For example, in southern and northern Sudan there has been significant progress in formulating the Sudan Institutional Capacity Programme: Food Security Information for Action (SIFSIA). The overall objective of the programme is to strengthen "*human, physical and organisation capacities ... in the generation and utilisation of information for the analysis, monitoring and evaluation of food security related policies and programmes*" (FAO (2005e). This should be attained through the following objectives: (i) the overall policy framework for food security is to be defined and made operational; (ii) an institutional set-up for food security is to be established to enhance coordination and strengthen vertical and horizontal linkages; (iii) effective policies and programmes should be designed, monitored and evaluated to address key priority areas; and (iv) relevant food security information should be easily accessible and usable by all relevant stakeholders.

To date, the ongoing work of the programme points to a number of lessons that have wider application in strengthening institutions. First, the alignment of support to the highest decision-making bodies is critical, because the credibility of future interventions will often depend on the institutional location of such support. For example, for both northern and southern Sudan it is recommended to create two Food Security Councils under the Office of the President to ensure that food security is effectively prioritized. However, as in

many other contexts, the implications of decentralization remain challenging.

Additionally, the linkage between information and decision-making processes should be established as an early priority and information gaps should be addressed. For example, in northern Sudan, key gaps and shortcomings include out of date census and baseline data, lack of information standardization, duplication, limited information access and poor linkages between chronic and transitory contexts. This is a critical area of concern, and has also been the subject of a joint assessment between the African Union (AU), the EU and FAO on the effectiveness of early warning systems in Africa (FAO, 2006h).

Conclusions

The link between acute and chronic food insecurity raises challenges for donors and international agencies to decide the relative severity of different crises and the appropriateness of alternative response options. Although agencies are working to innovate in their programming approach, the weakness of existing analytical tools and the absence of common terms, definitions and frameworks for analysing food security remain. Therefore, programming tends to be guided by one-off needs assessments, driven by resource-led interventions. A policy bias exists towards addressing the acute symptoms of crisis, rather than the underlying causes of a dynamic situation. This is also compounded by inconsistent and unpredictable humanitarian funding.

More effective strategies are required to evaluate the appropriateness of food security strategies and to determine where food aid is required and where it is not. The following policy priorities have been identified to ensure food security response strategies that link immediate food security interventions to medium- and longer-term priorities:

- Improving food security analysis to ensure that responses are needs-based, strategic and timely;
- incorporating needs assessment as part of a process linked to monitoring and evaluation, rather than a one-off event driven by resource requirements;
- strengthening institutional capacity and leadership at the international, national and regional levels to ensure that the wider dimensions of food security are considered in policy and programming exercises.

6. Conclusions

Food security exists when all people at all times have physical and economic access to sufficient, nutritious and safe food for an active and healthy life and are not at undue risk of losing such access. People are food insecure when one or more of the dimensions of food security – availability, access, utilization and stability – are compromised. Food aid may or may not be part of an appropriate intervention, depending on which dimensions of food security are affected and why.

One of the key messages from this year's *The State of Food and Agriculture* is that food aid, rather than being the default option in humanitarian crises, should be seen as one of many options within a wider range of social safety nets that seek to ensure a minimum level of well-being and to help households manage risk. In addition to providing food during crises, such cash- or food-based safety nets provide fungible resources that can be used to protect and invest in productive assets. Whether to use food instead of cash in a social safety net depends largely on the availability of food and the functioning nature of markets. Where adequate food is available and affordable through markets that remain accessible to crisis-affected people, food aid may not be the most appropriate resource.

Food insecurity can exist both on a chronic basis and in situations recognized as "crises" or "emergencies". Indeed, crises may precipitate a decline into chronic food insecurity if households are forced to liquidate productive resources in order to survive. Furthermore, crises often occur within an overall context of chronic food insecurity, and thus may take on the characteristics of a complex or protracted emergency. Food insecurity therefore should not be viewed as a purely transitory phenomenon triggered by an external shock. Likewise, response options should go beyond the immediate measures needed to restore acceptable food consumption levels. It must be recognized that short-term interventions can and do have long-term consequences and that these consequences can be positive or negative.

A third central message of this year's report is that the economic effects of food aid are complex and multilayered, and solid empirical evidence is surprising scarce. Adverse consequences of food aid occur, but they should not be overstated. The little evidence available does not support the view that food aid creates "dependency" at the household, community or national levels when food aid volumes are too unpredictable and small to elicit such dependence. Indeed, a rights-based approach to food security implies that people ought to be able to depend on appropriate safety nets when they are unable to achieve food security on their own.

The empirical evidence is clear that food aid tends to depress and destabilize prices of local products, with negative implications for the livelihoods of local producers and traders. Similarly, food aid based on local or regional purchases may drive up market prices, harming poor net food buyers and creating unsustainable incentives for producers and traders. In both cases, harm seems most likely to occur when food aid arrives or is purchased at the wrong time; when food aid distribution is not well targeted to the most food-insecure households; and when the local market is relatively poorly integrated with broader national, regional and global markets.

Food aid affects commodity prices but it does not seem to affect overall production significantly at the household or national level when quantities are small. Earlier studies found a negative correlation between food aid and food production, but these results could in several cases probably reflect the co-existence of food aid and low productivity rather than a causal relationship. Because food aid tends to flow to households and communities affected by chronic poverty and recurrent disasters, it may be more appropriate to say that those

conditions lead to food aid rather than the reverse.

The empirical evidence shows that food aid displaces commercial exports in the short run, although under certain conditions it may have a stimulating effect in the longer term. The impacts of food aid on commercial trade differ by programme type and affect various suppliers differently. Several studies suggest that the low impact of small quantities of food aid on commercial trade flows would not translate into trade-distorting effects.

A fourth key message is that emergency food aid and other social safety nets are essential in order to prevent transitory shocks driving people into chronic destitution and hunger; but, by themselves, they cannot overcome the underlying social and economic causes of poverty and hunger. This challenge can only be effectively addressed as part of a broader development strategy. Donors should avoid falling into a "relief trap" in which so many resources are devoted to emergencies that longer-term needs are neglected.

Food aid is the default response in humanitarian emergencies, and the degree to which people rely on markets for their food security is often overlooked. Emergency response should consider a broader range of interventions aimed at restoring the resilience of local food systems as quickly and efficiently as possible. Food aid may be part of this response if the underlying cause of food insecurity is a lack of food availability. In cases where food utilization is compromised by famine conditions, the use of fortified and therapeutic foods may also be necessary.

Part of the reason food aid dominates humanitarian response is a policy gap that exists on many levels. Bridging this gap requires improving food security analysis to ensure that responses are needs-based, strategic and timely; incorporating needs assessment as part of a process linked to monitoring and evaluation, rather than a one-off event driven by resource requirements; and supporting national and regional institutions to make food security a primary policy concern, reinforced by interventions at the global level focused on food aid and humanitarian reform.

A final key message of this issue of *The State of Food and Agriculture* is that reforms to the international food aid system are necessary but should be undertaken giving due consideration to the needs of those whose lives are at risk. Ongoing negotiations on this issue should use solid empirical evidence and information. Monitoring and assessment systems should be strengthened to ensure that decisions arrived at do not have negative consequences. To this effect, programming related to targeting and timing of food aid should be fully taken into consideration. The findings in this report suggest that a few fairly simple reforms could improve the effectiveness and efficiency of food aid, while at the same time addressing legitimate concerns about the risk of adverse consequences. These reforms include:

- elimination of untargeted forms of food aid;
- untying of food aid from domestic production and shipping requirements;
- use of commodity food aid only when the underlying food insecurity problem is caused by a shortage of food;
- use of local and regional purchases where sufficient food is available – without replacing domestic tying requirements with local and regional tying;
- improvement of information systems, needs analysis and monitoring to ensure that appropriate and timely interventions are undertaken and that the risks of negative consequences are minimized.

Special contribution

Food sovereignty and the right to food should guide food aid reform: a view from civil society[1]

Food aid is in many situations a necessary element to guarantee the right to freedom from hunger for people who are affected by acute hunger and malnutrition and whose government is unable or unwilling to take the necessary measures to solve the situation. If a government is unwilling to support part of the people living on its territory in a situation of need, this can be judged as a gross violation of the human right to adequate food. In such situations, international food aid can help as emergency aid to guarantee that the affected persons and communities do not starve, but the international community must also press the government to use the maximum of the resources available to guarantee that nobody dies from hunger. If governments are unable to do so for lack of resources or available foodstuffs, the international community is obliged to help. Article 2 of the International Covenant on Economic, Social and Cultural Rights describes the important role international cooperation has to play in such situations and the obligation to assist.

REASONS FOR HUNGER AND MALNUTRITION

It is important to highlight that natural and human-induced catastrophes, which trigger food aid, are currently responsible for around 10 percent of all hungry and malnourished people in the world; 90 percent of the hungry suffer from chronic malnutrition. Around 80 percent of the hungry live in rural areas, half of them are smallholder peasants, another 22 percent are landless labourers and 8 percent live by using natural resources, such as pastoralists, fisherfolk etc. The majority of these groups live in extremely marginal conditions, in remote areas without secure access to productive resources, credit and markets, and without any formal support by extension services, etc. It is extremely important to overcome this marginalization in order to reduce the number of hungry worldwide. Moreover, it is often the extremely poor and marginalized who are first hit by natural catastrophes. Absence of land reform forces poor and marginal farm households to use land highly vulnerable to catastrophes, such as floods or droughts. National and international agricultural policies have often forced them to migrate to these risk-prone areas. It would therefore be a wrong trend to focus more and more resources on combating catastrophes while failing to address these problems. What is needed is to combat the marginalization of the affected communities and people.

[1] This contribution was prepared by Michael Windfuhr, FIAN-International, on behalf of the International NGO/CSO Planning Committee for Food Sovereignty, a facilitative body that promotes and enables a debate with the United Nations agencies and international institutions based in Rome on agrifood-related policies.

THE USE OF FOOD AID CRITICIZED BY CSOs/NGOs DURING THE LAST DECADES

Food aid, often sourced in donor countries partially as a means of surplus disposal, can undermine local production and trade because it negatively affects local markets and the prices poor smallholder farmers receive for their production. Such tied aid is at the same time often culturally and environmentally inappropriate. It often comes too late (especially when shipped internationally) and is more expensive than would be the purchase of local or regional surpluses. Moreover, because food aid programmes are often funded according to political and commercial objectives of donor countries and not based on the needs of the people at risk, some crisis situations do not get enough attention and support. Still, the old rule prevails: the availability of food aid increases when donor surpluses are large and international prices are low, and vice versa. Because food aid is often tied to in-kind aid and other means of support are not available, it is often implemented in situations where other types of intervention and help would be more effective and useful. Other forms of help could be cash transfer programmes, livelihood support programmes or broader food-security-oriented programmes.

FOOD AID MAY UNDERMINE FOOD SOVEREIGNTY

As this short summary of civil society criticism illustrates, food aid has a real potential – if not delivered properly and in a careful manner – to undermine food sovereignty. Local markets are severely hit when food aid is used as an indirect form of export dumping. The selling of food aid to finance development projects (monetization) is also often a dangerous way of destroying local farm prices. The selling of food aid can also have an impact on the local diets. It can contribute to changes in diet and consumption patterns. In the case of GM food aid it was even worse. The consumer priority has been ignored in the recent past and GM food aid offered without discussion. Food aid should be used respecting the principle of food sovereignty.

The current WTO agricultural negotiations are heading towards the establishment of a "safe box" for emergency food aid that is exempted from standard trade disciplines. Although it is right to make such an exemption, it should not be the role of the WTO to define "emergency food aid" or to manage such a "safe box". This is in our view far beyond the mandate and the competencies of that institution and should be done by more appropriately mandated institutions such as FAO.

WHAT CAN AND SHOULD BE LEARNED FROM THE RIGHT-TO-FOOD DEBATE?

Important criteria for a renegotiation of the Food Aid Convention, or for any other form of institutional setting in which food aid is organized in future, can be drawn from the right to adequate food. The text of the "Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of national food security" contains already important criteria on how food aid should be organized and how it should be integrated into long-term rehabilitation and development objectives (Guideline 15.4). Guideline 15 is on international food aid and Guideline 16 on natural and human-made disasters. The guidelines were adopted in November 2004 unanimously by the FAO Council. The guidelines make clear that food aid must be based on a sound needs assessment and that it must be targeted especially to food-insecure and vulnerable groups. Food aid must be demand driven: "…donor states should provide assistance in a manner that takes into account food safety, the

importance of not disrupting local food production and the nutritional and dietary needs and cultures of recipient populations". The guidelines highlight that a clear exit strategy must exist and that no dependency should be created. The distribution of food aid should be done without discrimination towards any group or individual in a country.

Moreover, civil society organizations recommend that any food aid commitment (if renewed under the FAC or any other form of successor organization) should be denominated in amounts of food or nutritional equivalents. These commitments should be allocated to needs assessments using internationally accepted methods. Guideline 16 widens the context by highlighting that food aid delivery must respect the standards of international humanitarian law and that refugees and internally displaced persons should also have access at all times to adequate food. It also highlights the need to have an adequate and functioning mechanism of early warning in place in order to prevent or mitigate the effects of natural or human-made disasters.

A NEW GOVERNANCE STRUCTURE FOR FOOD AID IS NEEDED

Any renewed FAC or other organizational arrangements need to overcome the current organizational limitations of the FAC. The membership must be broadened to include new food aid donors but also representation from food aid recipient countries. Participation should also be guaranteed for input from other stakeholders, particular non-governmental organizations and social movements. Any new setting should fully integrate the aspects of humanitarian law and the perspective of disaster preparedness and of early warning systems. We still believe that a firm commitment to deliver genuine food aid is needed, particularly if agricultural surpluses continue to decline and the demand for energy crops continues to increase.

Part II

WORLD AND REGIONAL REVIEW

Facts and figures

Part II

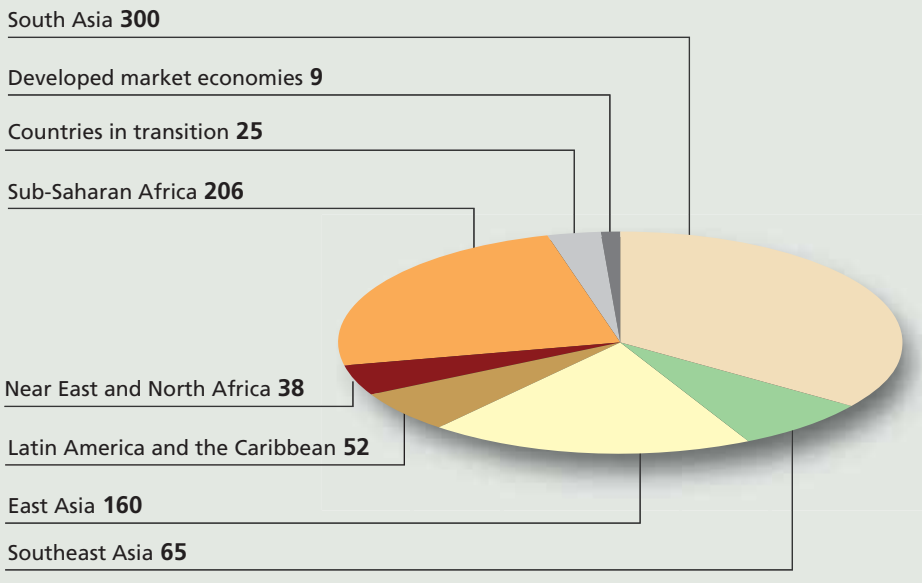
1. TRENDS IN UNDERNOURISHMENT

- The total number of chronically undernourished people in the world is estimated by FAO at 854 million for the period 2001–03, of whom 820 million live in developing countries, 25 million in countries in transition and 9 million in developed market economies (Figure 13). As in previous years, more than half of the total number of undernourished, 61 percent, live in Asia and the Pacific, while sub-Saharan Africa accounts for 24 percent of the total. The highest prevalence of undernourishment is found in sub-Saharan Africa, where FAO estimates that 32 percent of the population is undernourished (Figure 14). Long-term trends show that the absolute number of undernourished people in developing countries has somewhat declined while the prevalence of undernourishment has fallen significantly, from 37 percent of the total population in 1969–71 to 17 percent in 2001–03 (Figures 15 and 16). Although this constitutes important progress, it has been very uneven and has slowed down in recent years.

- Most of the improvement in undernourishment over the past 35 years has been concentrated in Asia and the Pacific, where the prevalence of undernourishment has been reduced by almost two-thirds. In sub-Saharan Africa, the very limited reduction in the prevalence of undernourishment has been more than offset by population growth, resulting in a large increase in the absolute number of undernourished people.

- The regional aggregate trends, however, conceal significant subregional differences. Within sub-Saharan Africa, all the subregions except Central Africa have made impressive progress in reducing the prevalence of undernourishment. In Central Africa,

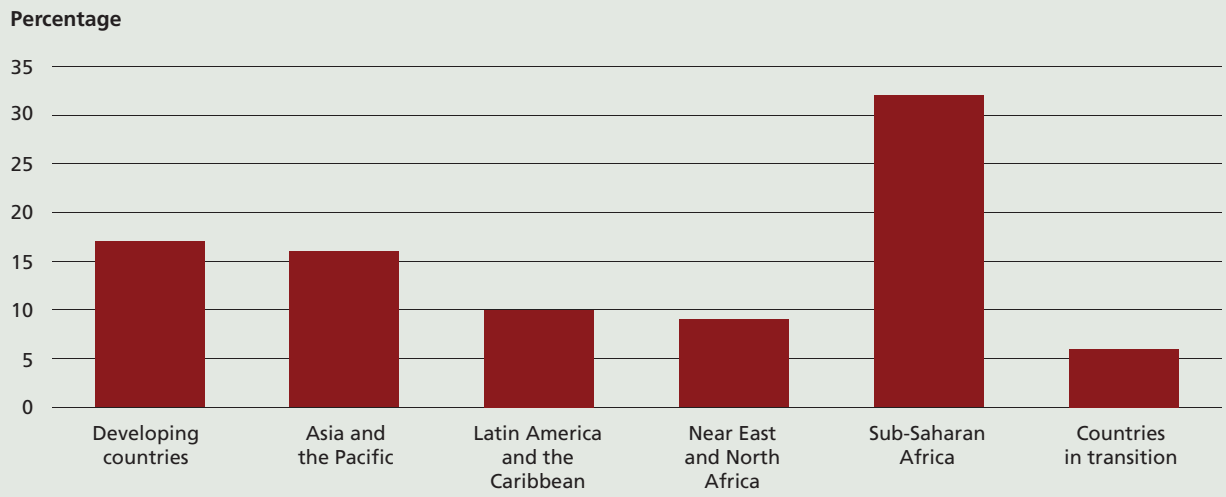
FIGURE 13
Undernourished population by region, 2001–2003 (millions)



Note: Figures are rounded.

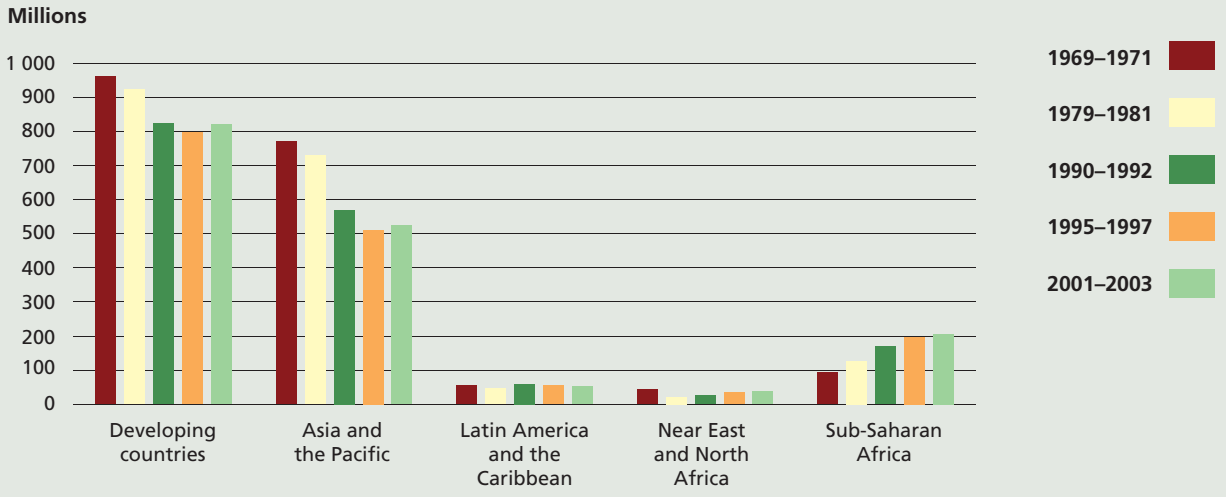
Source: FAO.

FIGURE 14
Percentage of undernourished in the population by region, 2001–2003



Source: FAO.

FIGURE 15
Trend in number of undernourished in developing countries, by region

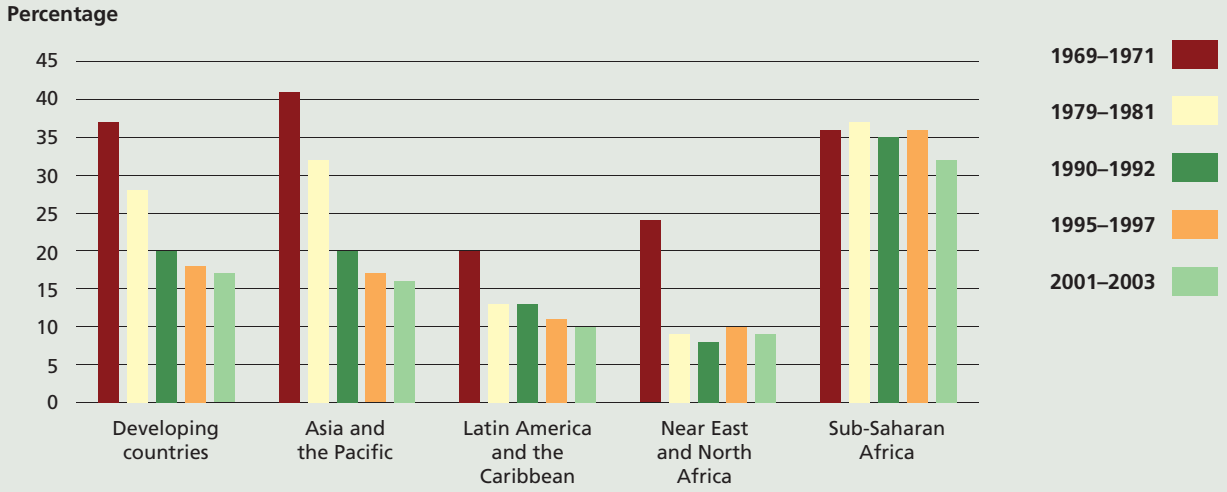


Source: FAO.

the share of undernourished people in the total population has increased dramatically, to 56 percent, against 36 percent in the early 1990s.

- An analysis of changes in the prevalence of undernourishment at country level between the 1995–97 and 2001–03 periods shows that the percentage of undernourished people declined in the majority of countries in all regions, while a few countries (the Democratic Republic of the Congo, Liberia, Comoros, Guinea-Bissau, Sierra Leone and Eritrea) experienced substantial increases due to economic mismanagement and political turmoil, combined with the effects of the wars in the late 1990s and early 2000s.

FIGURE 16
Trend in percentage of undernourished in developing countries, by region



Source: FAO.

2. FOOD EMERGENCIES AND FOOD AID

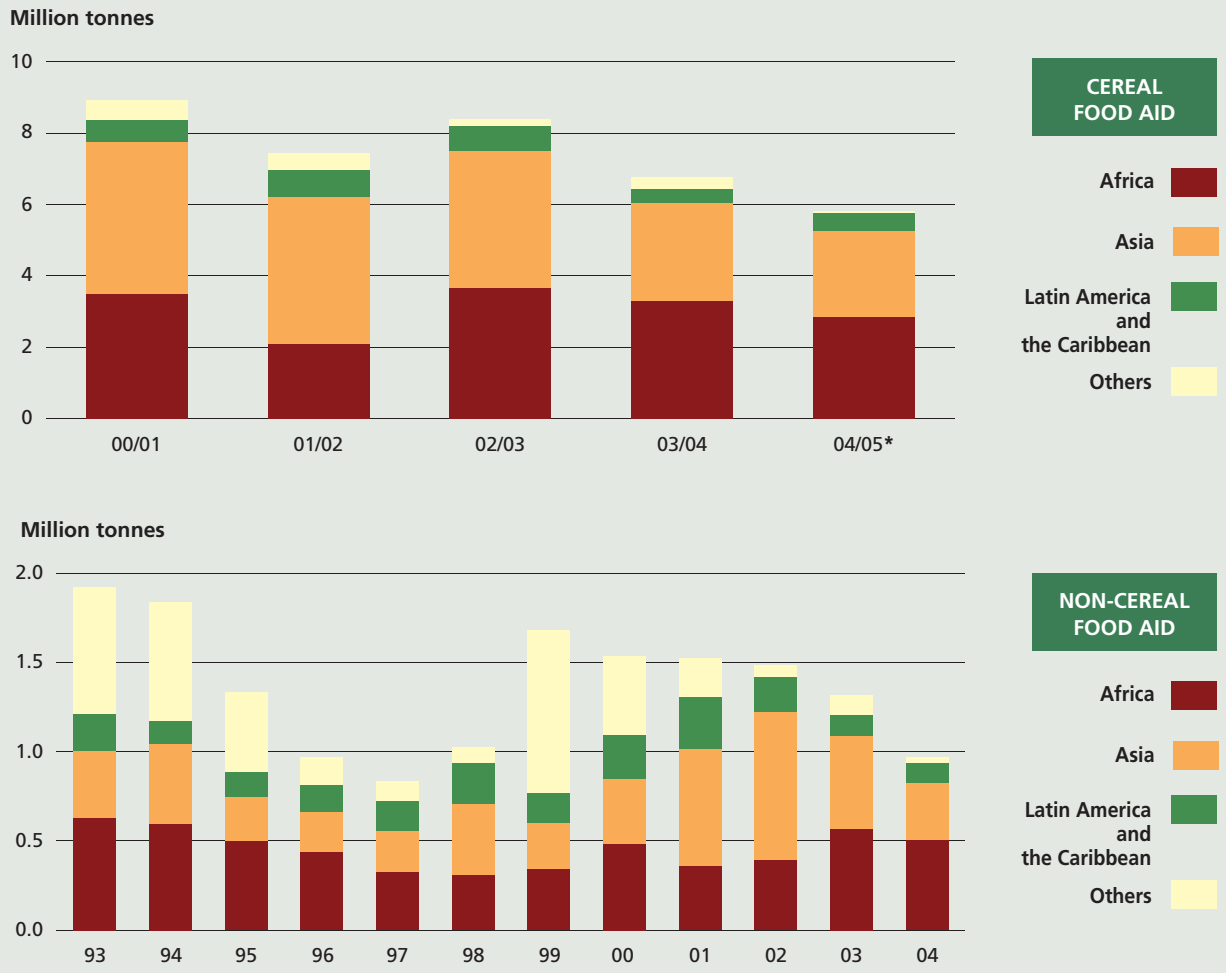
- A large number of countries and people continue to be affected by food emergencies. As of May 2006, the number of countries facing serious food shortages throughout the world stood at 39. Twenty-four of these were in Africa, 9 in Asia, 5 in Latin America and 1 in Europe.[1] The causes are varied, but civil strife and adverse weather, including drought, predominate. In many of these countries, food shortages are compounded by the impact of the HIV/AIDS pandemic on food production, marketing, transport and utilization.

- Civil strife and the existence of internally displaced people or refugees account for more than half of the reported food emergencies in Africa as of May 2006. Worldwide, the proportion of food emergencies that can be considered human-induced has increased over time. Indeed, human-induced factors, including conflict and economic failures, were cited as the main causes of 48 percent of food emergencies between 1997 and 2006, compared to around 41 percent in the period from 1986 to 1996. In many cases, natural disasters have been compounded by human-induced disasters, leading to prolonged and complex emergencies.

- The recurrence and persistence of emergencies often exacerbate the severity of their impact. Twenty-eight countries experienced food emergencies during more than half of the years of the period 1986–2006. In particular, many conflict-induced complex emergencies have been persistent and have turned into long-term crises. No fewer than 12 countries suffered emergencies during 15 or more years of the period 1986–2006 and, in the majority of the cases, war or civil strife was a major factor.

[1] FAO, 2006b. The countries of the Near East in Asia are classified with Asia, whereas the countries of the Near East in North Africa are classified with Africa.

FIGURE 17
Recipients of food aid
(In grain equivalent)



* Estimate
Note: Years for food aid in cereals refer to the 12-month period July/June.
Countries of the Near East in Asia are classified with Asia. Countries of the Near East in North Africa are classified with Africa.

Source: WFP.

- In contrast, many countries that enjoy relatively stable economies and governments but are plagued by unfavourable weather have implemented crisis prevention and mitigation programmes and established effective channels for relief and rehabilitation efforts. For these countries, a natural disaster need not result in a prolonged humanitarian crisis.

- Food aid shipments in the form of cereals declined to 5.8 million tonnes (in grain equivalent)[2] in 2004/05 (July to June), down almost 1 million tonnes (or 14 percent) from the already reduced level in 2003/04 (Figure 17). This level of food aid was close to the historic low reached in 1996/97. The decline in cereal food aid shipments in 2004/05 contrasted with the sudden increase of

[2] To express cereal food aid in grain equivalent, wheat, rice and coarse grains are counted on a one-to-one basis; for grain products, appropriate conversion factors are used to determine the grain equivalent.

TABLE 1

Shipments of food aid in cereals, July/June

(In thousand tonnes of grain equivalent)

	2000/01	2001/02	2002/03	2003/04	2004/05*
Total shipments	8 940	7 422	8 383	6 767	5 809
by type:					
Wheat	5 797	4 770	5 677	4 082	3 621
Rice	1 399	1 058	1 498	1 177	1 064
Coarse grains	1 744	1 594	1 208	1 507	1 124
by region:					
Africa	3 476	2 091	3 667	3 299	2 840
Asia	4 283	4 116	3 820	2 725	2 420
Latin America and the Caribbean	596	758	725	401	502
Others	585	458	171	342	47

*Estimated.
Source: WFP.

around 15 million tonnes (or 18 percent) in cereal imports by the group of 82 low-income food-deficit countries (LIFDCs).

- Major cereal food aid recipients in 2004/05 were East Africa, East Asia and the Near East. Out of the total number of almost 90 countries receiving food aid in 2004/05, the top five recipients were the Democratic People's Republic of Korea, the Sudan, Ethiopia, Bangladesh and Eritrea. In the previous year, Iraq ranked first, followed by Ethiopia, the Democratic People's Republic of Korea, Zimbabwe and Bangladesh. Food aid is also provided in the form of non-cereals, although the amount (in tonnage) is relatively small. In 2005, non-cereal food aid rose to just over 1 million tonnes, up slightly from 969 000 tonnes in 2004 (see Part 1, Figure 2 and Figure 17).

- Based on the latest (January 2006) estimates reported by the Food Aid Committee (FAC), total food aid shipments in 2005/06 are expected to remain unchanged from 2004/05, at 8.7 million tonnes (in wheat equivalent)[3] (Table1 and Figure 17). It is important to note that total food aid reported by the committee not only includes food aid in the form of grains, but also processed grain products, pulses and other eligible products, micronutrients and fortified products, as well as contributions of cash for the purchase of eligible products, all of which are expressed in terms of their wheat equivalent. Furthermore, the level of food aid in 2004/05, and most likely also in 2005/06, is well above the members' aggregate minimum annual commitments, set at around 5 million tonnes under the Food Aid Convention 1999.

- On the policy front, the renegotiation of the Food Aid Convention started in 2004 but, with the members feeling strongly that they should await the outcome of the Doha Round before agreeing to a new convention, they decided to extend the existing Convention (FAC 1999) for a further two years from July 2005.[4]

[3] The methods for the calculation in terms of wheat equivalent are laid down in the Rules of Procedure of the Food Aid Convention 1999.

[4] The specific food aid commitments of FAC members are expressed either in tonnage, in value or in a combination of both. Members' total minimum annual commitments include 4 895 000 tonnes (wheat equivalent) plus €130 million.

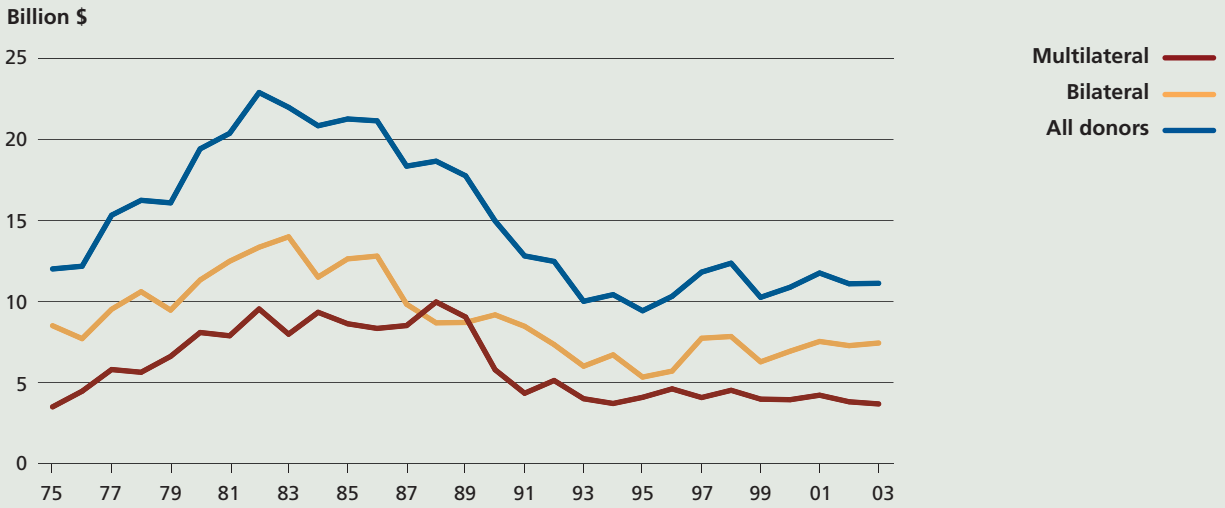
3. EXTERNAL ASSISTANCE TO AGRICULTURE

- External assistance commitments to agriculture have ranged between $10 and $13 billion (in real terms) in recent years, after declining sharply during the 1980s and early 1990s. Total external official commitments, measured in constant 2000 prices, reached $11.1 billion in 2003, which represents a decline of 10 percent since 1998, the steepest in the last decade (Figure 18). Data for 2004 are preliminary.

- The distribution of assistance by geographic region varies relatively little from year to year, with Asia, Latin America and the Caribbean and the transition countries experiencing the greatest variability in recent years. External assistance to sub-Saharan Africa has decreased by 17 percent from $3.7 billion in 2002 to $3.0 billion in 2003 (Figure 19).

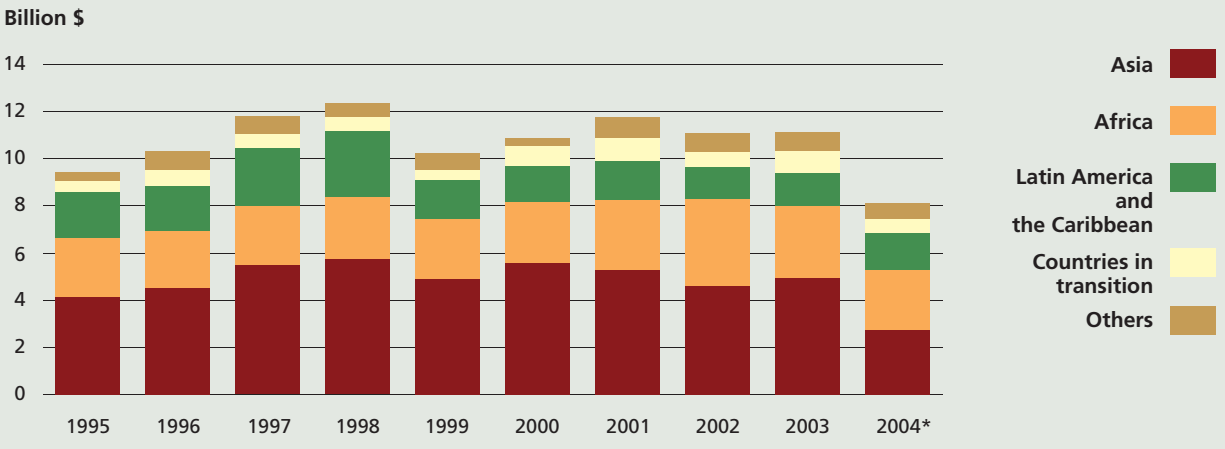
- Declines in both bilateral and multilateral assistance have contributed to the significant contraction in levels of assistance compared with those of the early 1980s. Overall, multilateral assistance has been fluctuating more over the last few years, while bilateral assistance has remained relatively more constant. The share of concessional assistance in the total varies from year to year but has risen somewhat, ranging from 70 to 80 percent in recent years compared with 60 to 70 percent up to the mid-1980s.

FIGURE 18
Long-term trend in external assistance to agriculture, 1975–2003
(At constant 2000 prices)



Source: FAO.

FIGURE 19
Commitments of external assistance to agriculture, by main recipient regions
(At constant 2000 prices)



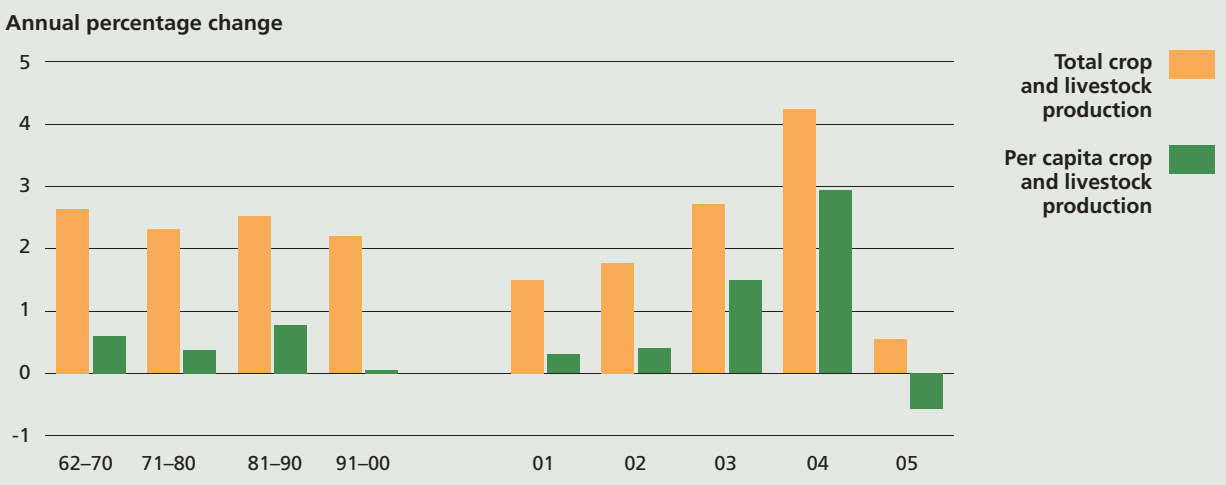
*Preliminary

Source: FAO.

4. CROP, LIVESTOCK AND FOOD PRODUCTION

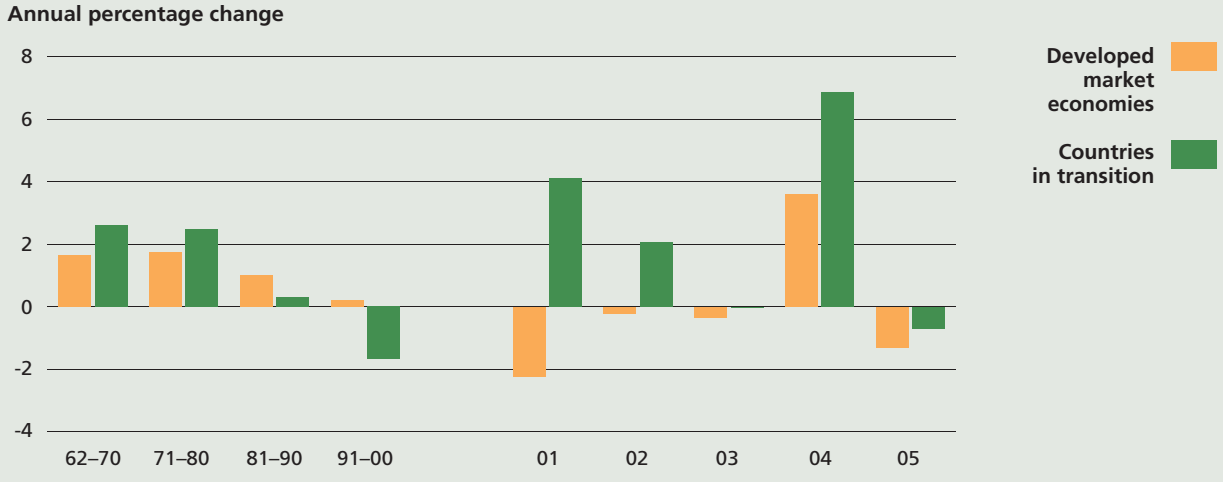
- World crop and livestock output growth fell in 2005 to the lowest annual rate since the early 1970s, and well below the rates reached in 2003 and 2004 (Figures 20 and 21). The decline was particularly strong in developed countries as a group, where the peak annual output growth of over 5 percent in 2004 was followed by negative 1.6 percentage growth in 2005. The overall decline was mainly due to a drastic drop in the crop sector, especially in developed countries, where output growth declined from over 12 percent in 2004 to negative 4 percent in 2005. Developing countries' total crop and livestock output growth also lagged below the average of the previous several decades. The crop and livestock output growth of transition countries continues to fluctuate dramatically, from positive 6.9 percent in 2004 to a small negative figure in 2005 (Figures 20 and 21).
- Although output growth for Asia and the Pacific was the highest among the regions, it was still well below the 2003 peak levels. Sub-Saharan Africa suffered yet another year of weak growth, reaching only 1.3 percent. The region of Latin America and the Caribbean, with less than 2 percent growth in 2005, was far away from the 4.7 percent output growth reached in 2003.
- While still growing more rapidly than crop agriculture, the rate of growth of global livestock production has slowed in the last two years and is below the averages of the last four decades. In per capita terms, however, the provisional figures for 2005 indicate output growth to be slightly above the average of the previous decades. For developing countries as a group, output growth in both absolute and per capita terms continues to increase, but at lower rates compared to previous years.

FIGURE 20
Changes in world total and per capita crop and livestock production



Source: FAO, FAOSTAT.

FIGURE 21
Changes in crop and livestock production



Source: FAO, FAOSTAT.

The expansion of the livestock sector in developing countries, which saw growth rates of 5 percent in the 1990s, seems to have passed its peak growth rates.

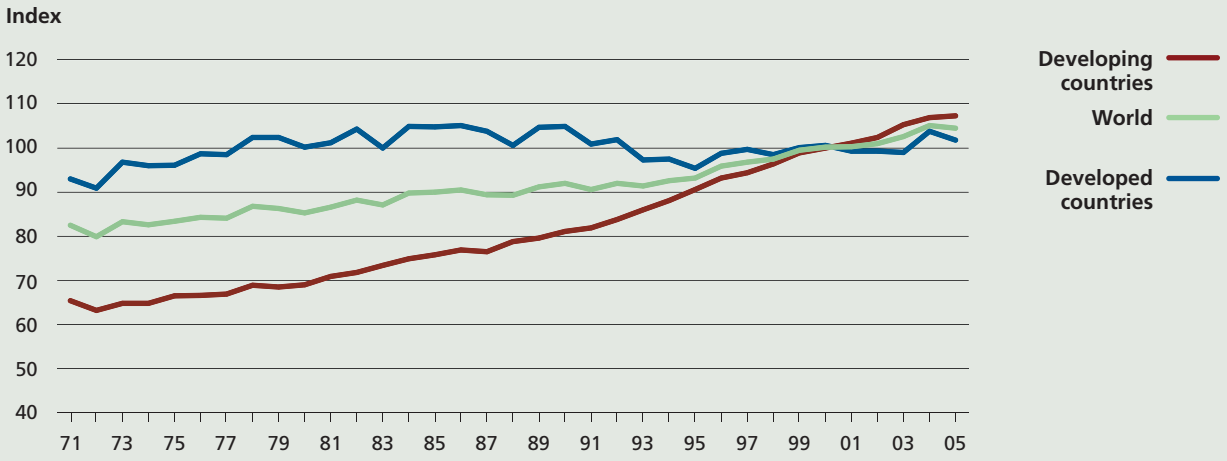
- Slowing rates of growth in livestock output have been caused by animal disease outbreaks, in particular of avian influenza, and subsequent consumer fears, trade bans and price declines for poultry. Many of the major poultry-consuming and importing countries of Europe, the Near East and Africa have experienced avian influenza outbreaks since late 2005, the market impact of which has been translated globally into immediate and dramatic consumer responses and an escalation of trade bans. Consumers shifted to other livestock products, the output of which grew but did not compensate for the slowing growth rate in poultry for developing countries as a group.

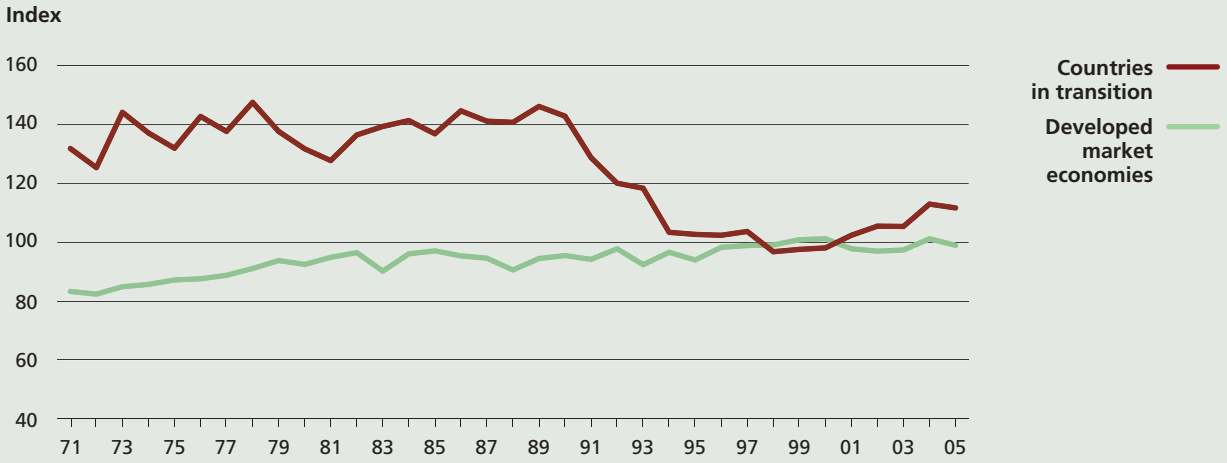
- Livestock output trends for developing countries are dominated by Asia and the Pacific and, more specifically, China, where the very high rates of livestock output growth recorded since the beginning of the economic reform process in the late 1970s have been tapering off in recent years. China has indeed attained a high level of per capita animal product consumption (compared to other countries with similar per capita income levels), which is expected to slow growth in demand for livestock products in future. While India has a rapidly growing meat output, albeit still at comparatively low levels, its milk output growth rates are slowing down. Asia appears to have reached peak growth rates in the 1990s and is experiencing more modest growth rates, although still high by international comparison.

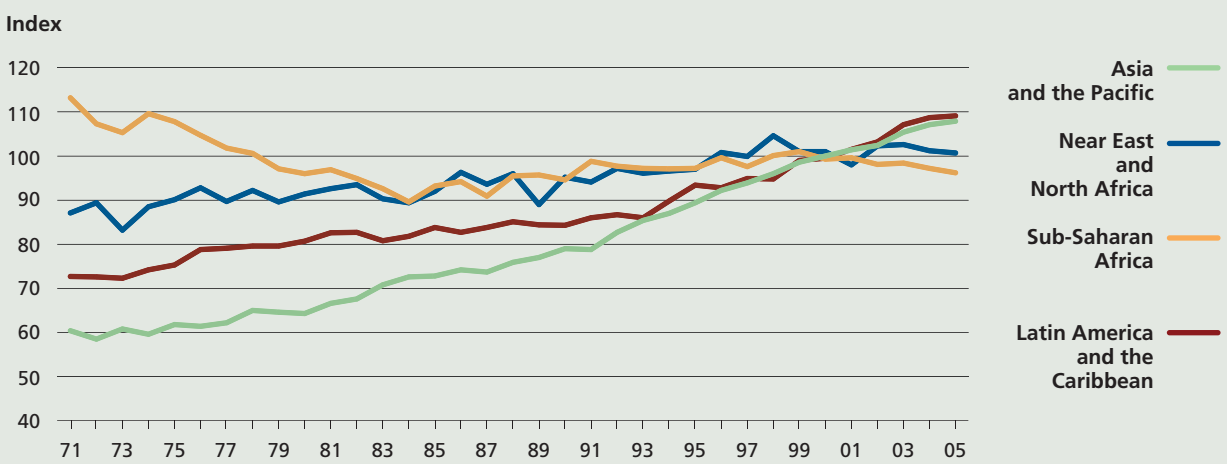
- Latin America recorded strong growth in 2004, followed by weaker growth the following year, partly because of lowered international demand for poultry products. The regional picture is strongly influenced by Brazil, and the export-led growth of its livestock industry in all major livestock products. The Near East–West Asia region recorded lower growth rates in 2004 and 2005 compared to previous decades, resulting in stagnating per capita output. The region is characterized by very pronounced fluctuations due to variable climatic conditions in many countries of the region where grazing livestock are important. Likewise, in sub-Saharan Africa, total output grew moderately but per capita output declined slightly, continuing a trend of decreasing per capita output over the past three years for the region as a whole. In developed and transition countries, both total and per capita output hardly changed, which is a reflection of stagnating populations and saturated markets.

- In 2005, food production in per capita terms fell globally, as a result of regional declines in sub-Saharan Africa, the Near East and North Africa, as well as in the developed countries as a whole (Figure 22).

FIGURE 22
Long-term trend in per capita food production by region and country group
(Index 1999–2001 = 100)







Source: FAO. FAOSTAT.

5. WORLD CEREAL SUPPLY SITUATION

- World cereal production, after several years of stagnation, increased sharply in 2004/05, reaching 2 065 million tonnes, a 9 percent increase over the previous year. Global utilization continued its upward trend, but it has not exceeded production (Figure 23). FAO's latest estimate of the world cereal production in 2005/06 indicates a decline.[5] This was mainly due to lower average yields caused by unfavourable weather conditions in some developed countries. In the low-income food-deficit countries (LIFDCs), 2005 recorded a significant increase of 4.4 percent from the previous year's level. Excluding China and India, the aggregate production of the rest of the LIFDCs expanded at a higher rate of 8 percent. This reflects good cereal crops in almost all subregions of the world, with the exception of countries in southern Africa, Morocco and Somalia, which were affected by drought.

- In the season ending 2006, world cereal stocks are anticipated to decline to 462 million tonnes, down 7 million tonnes, or 1.6 percent, from the opening level. This decline would have been much higher, but the fall in world cereal production in 2005 was mitigated by a slow increase in total cereal utilization in 2005/06. Based on the latest supply-and-demand estimates for 2005/06, the global cereal stocks-to-utilization ratio, which compares the level of inventories at the close of a season to utilization in the next, would stay at around 23 percent, similar to the previous season and 2 percentage points above the low reached in 2003/04 (Figure 24).

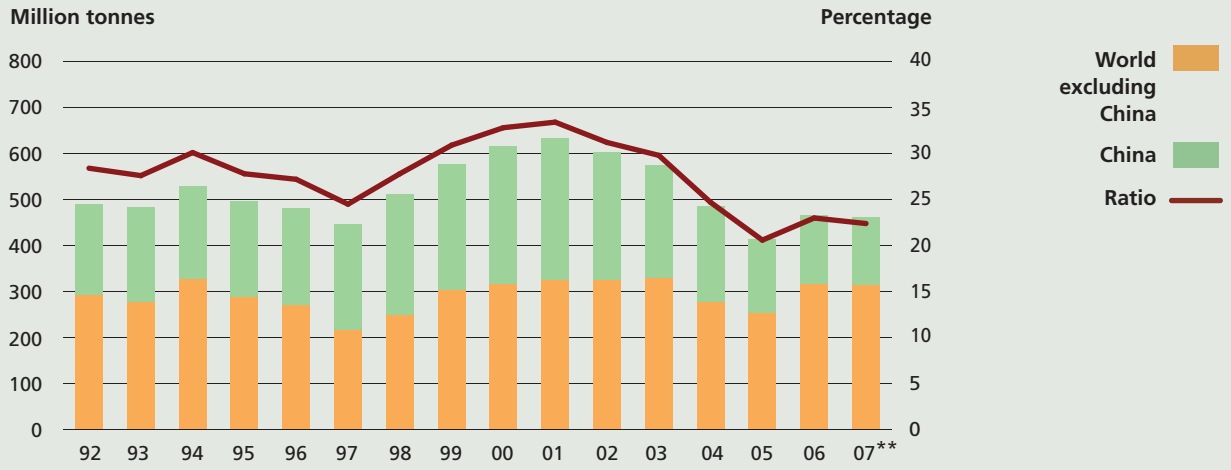
FIGURE 23
World cereal production and utilization

* Data refer to the calendar year of the first year shown.
** Forecast

Source: FAO.

[5] FAO. *Crop prospects and food situation,* No.1, April 2006.

FIGURE 24
World cereal stocks and stocks-to-utilization ratio*



* Stock data are based on aggregate carryovers at the end of national crop years and do not represent world stock levels at any point in time.
** Forecast

Source: FAO.

6. INTERNATIONAL COMMODITY PRICE TRENDS

- In 2005, prices of several basic food commodities reached their highest levels since the early part of this decade. Prices for dairy products led this trend, rising 67 percent, followed by sugar, 43 percent, and meat, 26 percent. In contrast, prices for cereals and oils and fats recorded price declines in 2005 (Figure 25).

- During 2005, international prices for vegetable **oils and fats** fell as a result of record global soybean and palm oil production. World consumption of oils and fats fell short of supplies, causing global inventories to rise and the stocks-to-utilization ratio to rise. Compared with 2004, the annual price index for oils and fats fell by eight points in 2005. In 2006, prices initially increased as a rise in global utilization coincided with a marked slowdown in palm oil production and a shortage of crushing capacity for seed crops. This upward pressure on prices is not expected to last because large supplies are anticipated to push inventories to record levels.

- Cereal prices increased by 21 percent between 2000 and 2005 and continued rising in the first half of 2006. The world price increase is caused by the prospect for lower **wheat** production and limited stocks and a strong demand outlook. The world balance sheet for 2006/07 is expected to show a sharp drop in ending stocks as well as a decline in the stocks-to-use ratio to about 20 percent, the lowest in over three decades. Against this background, and even barring any major or unexpected weather problems in the coming months, wheat prices are likely to remain high and volatile in the new season.

- **Coarse grains** markets are also being affected by lower stocks and prospects for reduced production. International prices changed little during the first half of the 2005/06 season but increased thereafter, supported by a robust demand from the ethanol sector, a potential recovery in feed use and tighter export supplies. On current production indications, the new season's supply-and-demand balance will be tight. This is evidenced in an anticipated sharp fall in world stocks and a near-record low stocks-to-use ratio.

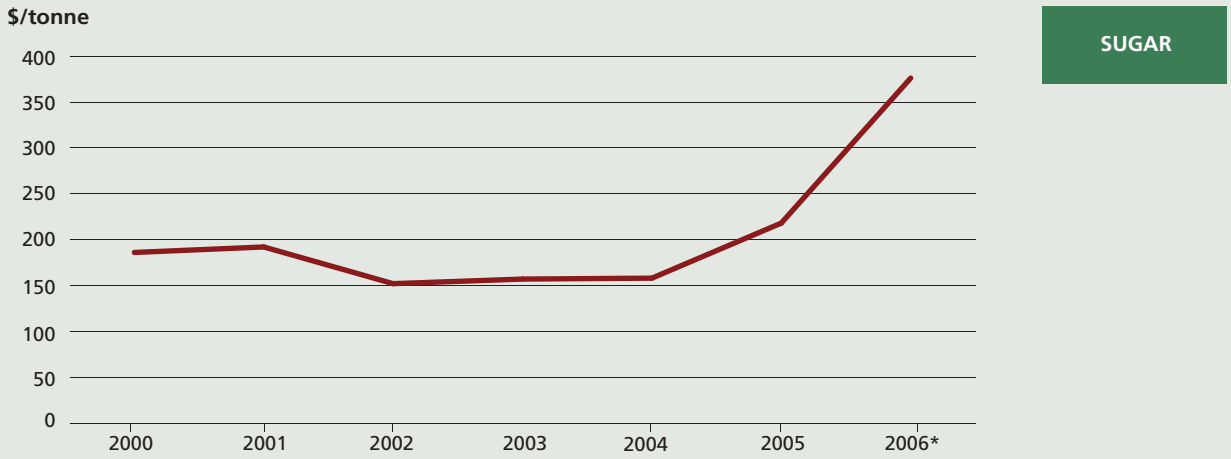
- The 2006 prospects for paddy **rice** production point to modest growth, reflecting concerns over rising production costs and falling profitability. The end-of-season rice stock, which started increasing in 2005, is likely to continue to grow in the current season, particularly in China. The expectation of a limited production increase may cause a decline in the per capita rice availability as food in 2006/07. International rice prices, which were particularly buoyant in the first quarter of 2006, are expected to remain firm for some months.

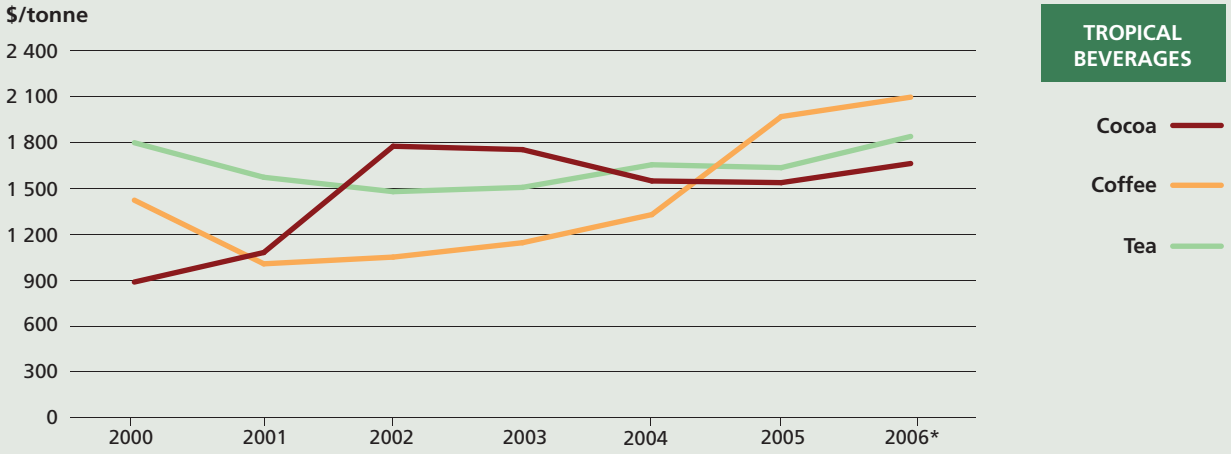
- After a brief recovery in 2005, global **meat** markets were again affected by animal disease concerns. As mentioned above, consumer response to the increasing incidence of avian influenza has dampened demand and prices for poultry. North American beef exports have faced bans due to bovine spongiform encephalopathy (BSE) and South American red meat exports have been affected by foot-and-mouth disease (FMD). Expectations of the lowest meat consumption gains in 25 years and escalating trade restrictions in 2006 are expected to limit global meat output, trade and prices.

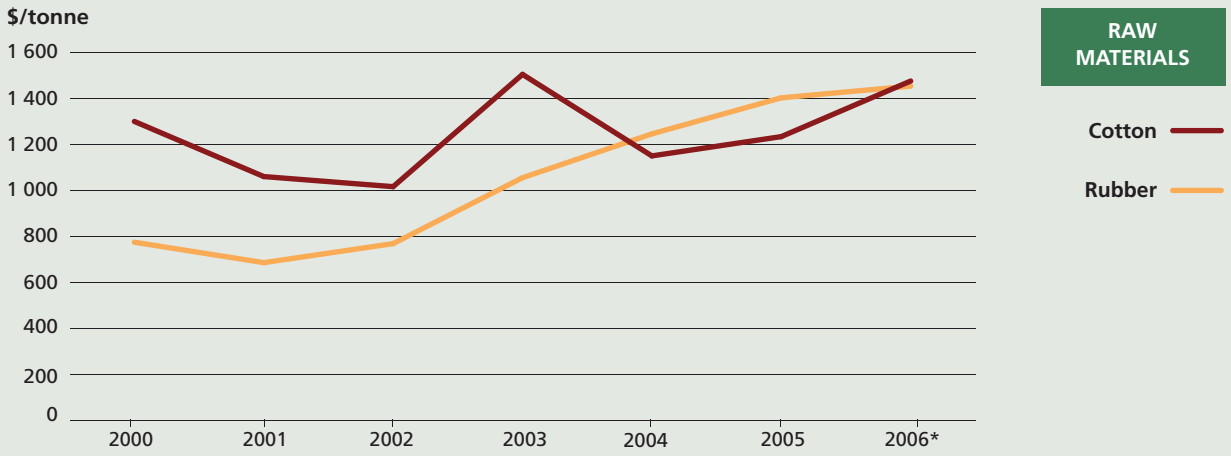
- World **sugar** prices reached their highest level in 25 years in February 2006, when raw sugar prices exceeded US¢19 per pound. The increase was mainly caused by higher energy prices and, for the third consecutive year, the continued supply deficit in the world sugar market. For the remainder of 2005/06, world sugar prices are expected to remain firm at present levels because the current supply-and-demand outlook does not support a further strengthening.

FIGURE 25
Commodity price trends

FIGURE 25 *(cont.)*
Commodity price trends







* Data for 2006 are based on a five-month average for sugar, cocoa, coffee, cotton and rubber, and a four-month average for tea.

Source: FAO.

- **Coffee** prices continued their upward trend and are expected to remain firm, mainly because of a shortage of supply caused by weather-induced damage to crops, especially in Colombia, Mexico, Peru and Viet Nam. The Brazilian supply is also reduced because of the natural biennial production cycle for Arabica trees and the strength of the *Real,* which is reducing competitiveness and leading farmers to turn to other crops. A 20 percent reduction of stock levels is expected for 2005/06, and consumption is forecast to increase by 2 percent.

- **Cocoa** bean prices are expected to remain firm because of a supply deficit. Cocoa bean production is forecast to be stable, as an increase in Côte d'Ivoire will likely offset smaller crops in Cameroon and Ghana. Cocoa grinding will expand because Brazil, Ghana and Indonesia have invested in processing facilities in order to increase their exports. World demand for cocoa products, in particular cocoa butter, is on the increase.

- **Tea** prices declined in 2005 and are well below their high level of the late 1990s, stimulating sustained demand by all major buyers but the United Kingdom, which has moved some processing plants to the south and has decreased its re-exports. Most producing countries have invested in promotional programmes to stimulate demand. Some have also chosen product differentiation and value-adding strategies such as the marketing of packed tea products and specialty teas.

- In 2005/2006 the world **cotton** price fluctuated between $1.00/kg and $1.45/kg, down sharply from $1.90/kg reached during late 2003 and early 2004; the decline was due to rapid supply expansion. Approximately two-thirds of world cotton is produced by small farmers with a great potential to expand their cotton areas swiftly in response to price changes. Moreover, the rapid adoption of transgenic insect-resistant cotton by major cotton producers has contributed significantly to reducing production costs and increasing yields. In 2006/07, world cotton production is projected to reach 25.5 million tonnes, almost 5 million tonnes more than in 2000/01.

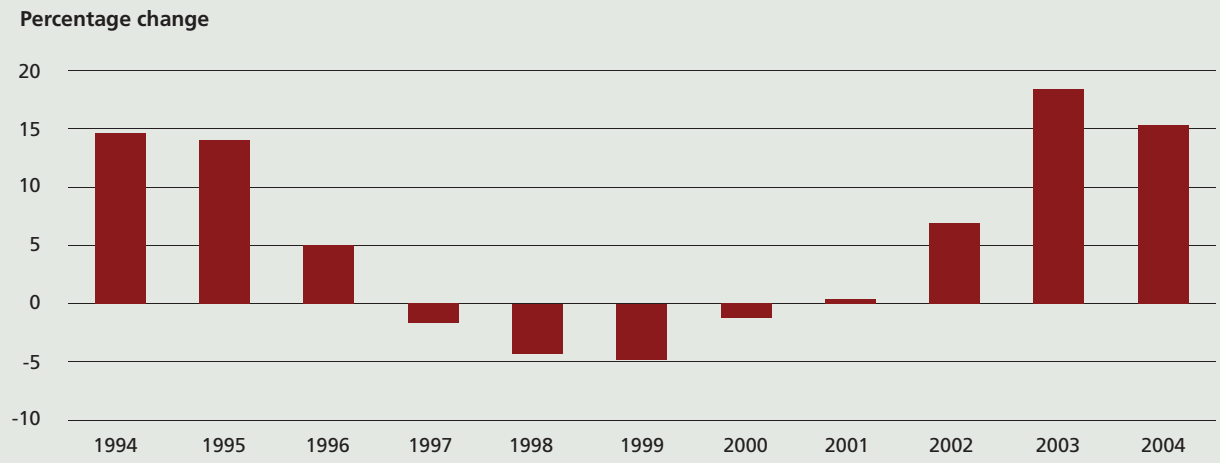
- The natural **rubber** price has improved significantly from its record low in 2001. The 2005 average price[6] was more than double what it was in 2001. This increase reflects higher global consumption, especially in China, India and Southeast Asia. China, the world's largest importer of natural rubber, imported 1.26 million tonnes in 2005, a 215 percent increase over 1999. World natural rubber production has continuously increased over the past three years, reaching 8.7 million tonnes in 2005. The high price and larger production has increased incomes and improved food security for natural rubber farmers worldwide. It is expected that global demand for natural rubber will continue to increase as global economic growth continues to stimulate demand and as high oil prices continue to make natural rubber more attractive than synthetic rubber.

- Towards the end of 2006, commodity markets as a whole became more volatile, with a steady upward trend in prices for many commodities. In agricultural markets, some important food and feed commodities gained on supply rigidity and stronger demand, while in the energy complex, the tighter supply-and-demand balance resulted in a steep increase in prices. Amid political uncertainties and surging energy prices, agricultural markets over the past year have also had to face abnormal incidences of natural disasters, such as hurricanes and fast-spreading animal diseases.

- The current signals indicate that several agricultural commodities are likely to experience even further gains in prices. This is especially probable for cereals, for world cereal demand is forecast to surpass its supply in the new season and reduce stocks to an uncomfortably low

[6] RSS3 in London.

FIGURE 26
Annual change in value of global agricultural exports
(In US dollar terms)



Source: FAO.

level. With regard to sugar, the main risk remains the continuing price volatility. For the oilseed complex, as well as meat and dairy, the short-term price prospects are instead more on the downside.

- Against this background of mixed outlook but generally firm prices, FAO is forecasting an increase of over 2 percent in the world food import bill in 2006 compared to 2005. The increase is expected to be strongest for cereals and sugar but smallest for meat. Given their higher share as importers of food and feed, the developing countries' bill is forecast to grow by 3.5 percent, while that of the LIFDCs is forecast to increase by nearly 7 percent.[7]

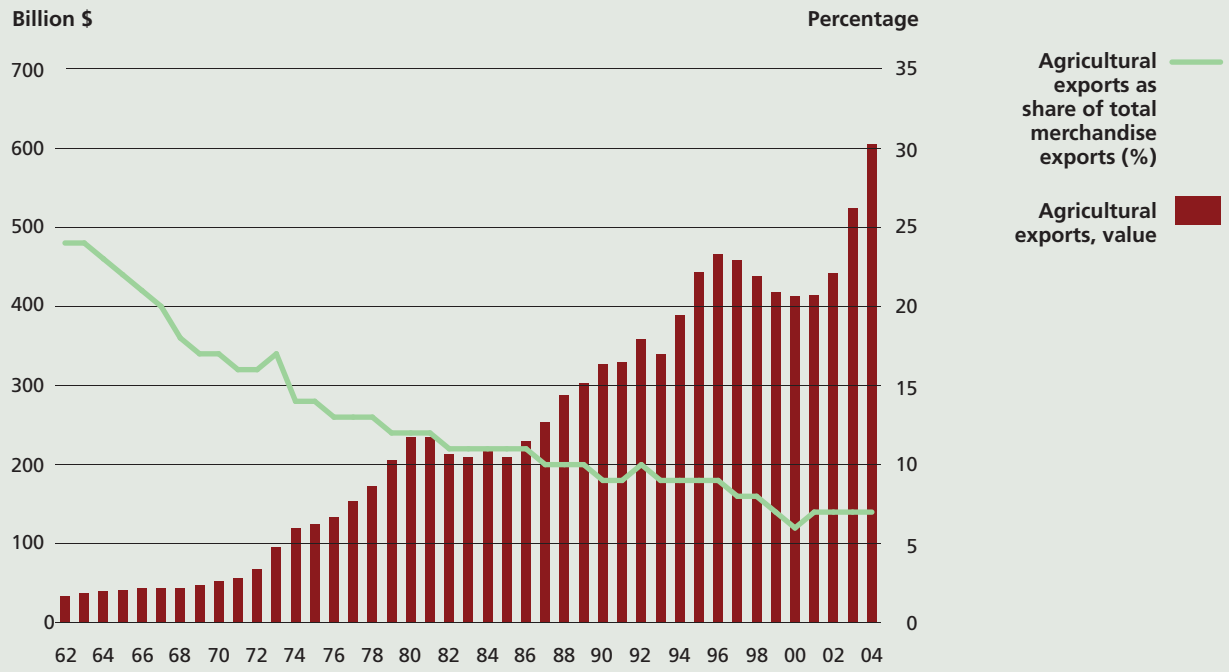
7. AGRICULTURAL TRADE

- The value of global agricultural exports expanded strongly between 2002 and 2004 after several years of stagnation (Figure 26). The share of agricultural trade in total merchandise trade continued a long-term downward trend throughout the 1990s, as agricultural trade has expanded more moderately than manufactured goods. The recent upturn in agricultural exports has stabilized agriculture's share of total merchandise trade at 7 percent, compared to around 25 percent in the early 1960s (Figure 27). For the developing countries, the share of agricultural exports in total merchandise exports has dropped from 50 percent in the early 1960s to less than 7 percent since 2000. The declining share of agriculture in the total merchandise exports of developing countries reflects both a shift of their trade towards manufactured goods and the relatively slow growth of agricultural trade.

- Until the early 1990s, the developing countries recorded an agricultural trade surplus in most years (Figure 28). The trend towards a widening agricultural trade deficit is even more pronounced for the least-developed countries (LDCs). The LDCs became net importers of agricultural products in the mid-1980s,

[7] FAO. *Food outlook,* No. 1, June 2006.

FIGURE 27
Global agricultural exports



Source: FAO.

and by the end of the 1990s imports were more than twice as high as exports. Quite different agricultural trade positions are found in the different developing regions. In particular, the Latin America and Caribbean region has seen a widening of its agricultural trade surplus, starting around the mid-1990s. At the same time, the region of Asia and the Pacific has become a net agricultural importer, while the significant structural deficit of the Near East and North Africa shows no signs of diminishing.

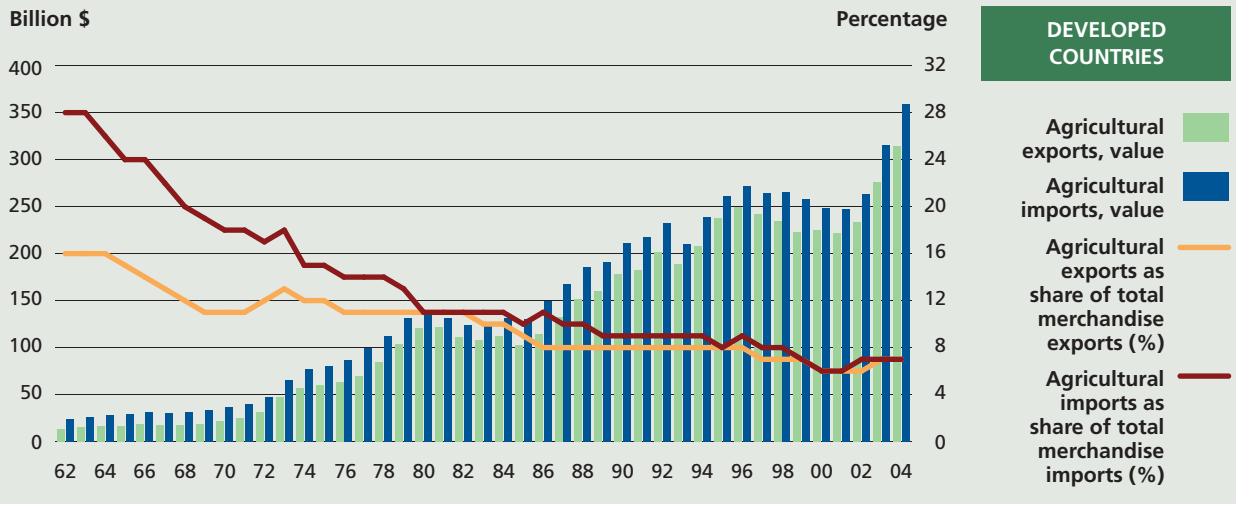
- In 2004, the WTO members approved a Framework Agreement[8] for establishing modalities in agriculture aimed at the successful conclusion of the Doha Round. The following WTO Ministerial Conference[9] also agreed that domestic support should include three bands for reductions in the Final Bound Total AMS[10] and in the overall cut in trade-distorting domestic support. With regard to export competition, it was agreed to eliminate all forms of export subsidies and all export-restrictive regulations, to be completed by the end of 2013. On market access, it was agreed to introduce four bands for structuring tariff cuts. It was agreed that the developing countries should have the flexibility to self-designate an appropriate number of tariff lines for special products essential for food security, livelihood security and rural development. Furthermore, the developing countries will be able to have recourse to a special safeguard mechanism based on import quantity and price triggers. Similarly, for cotton, the producers' right to an explicit decision within the agriculture negotiations and through the Sub-Committee on Cotton was reaffirmed.

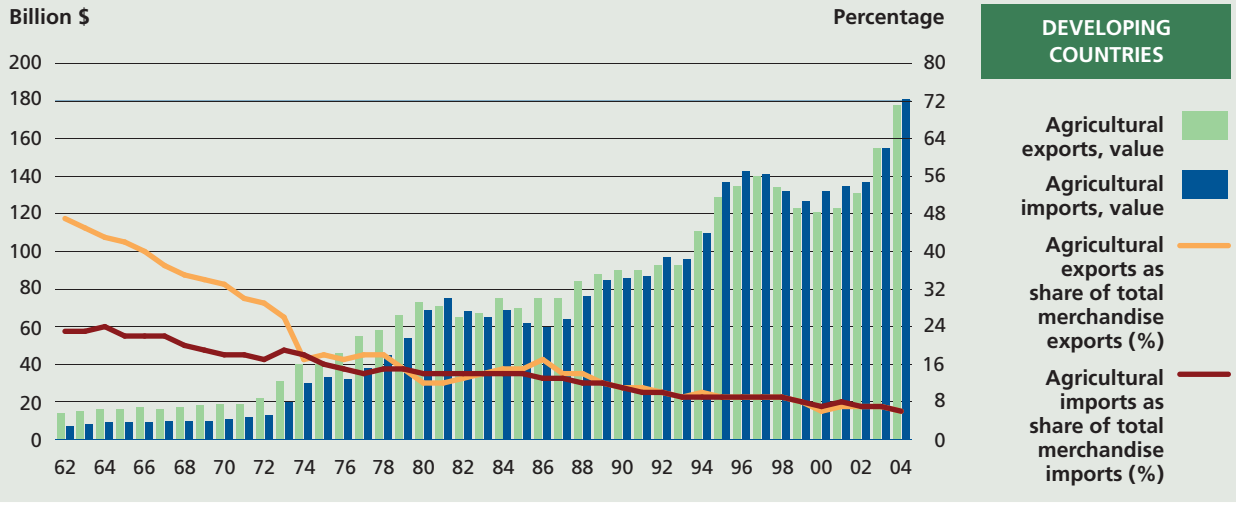
- No agreement was reached on numerous numerical parameters required for finalizing the above modalities.

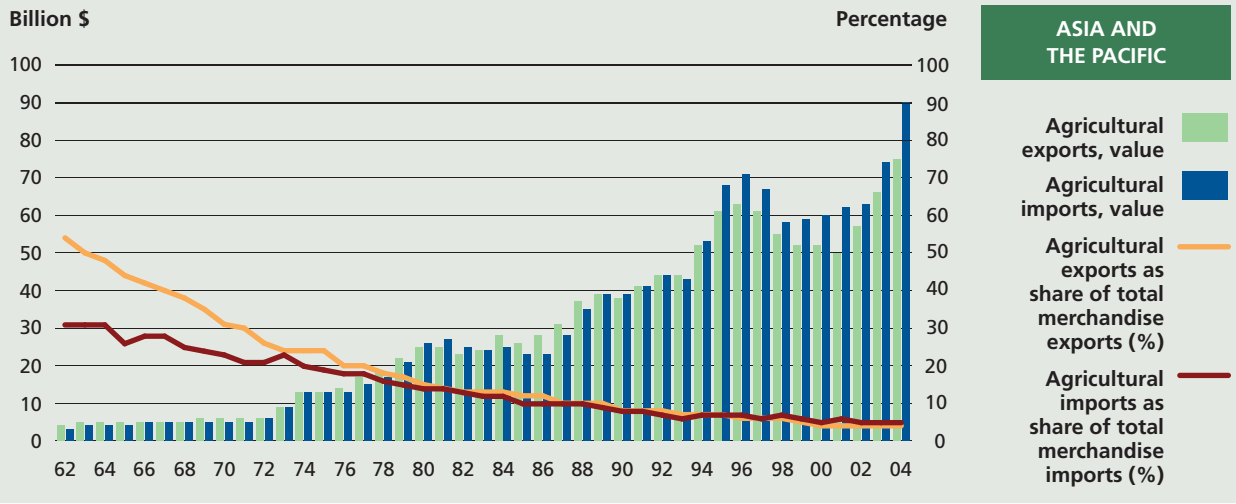
[8] WTO, Doha Work Programme, Decision Adopted by the General Council on 1 August 2004, WT/L/579, Geneva.
[9] Hong Kong Special Administrative Region, December 2005.

[10] Aggregate measure of support.

FIGURE 28
Agricultural imports and exports, by region and country group

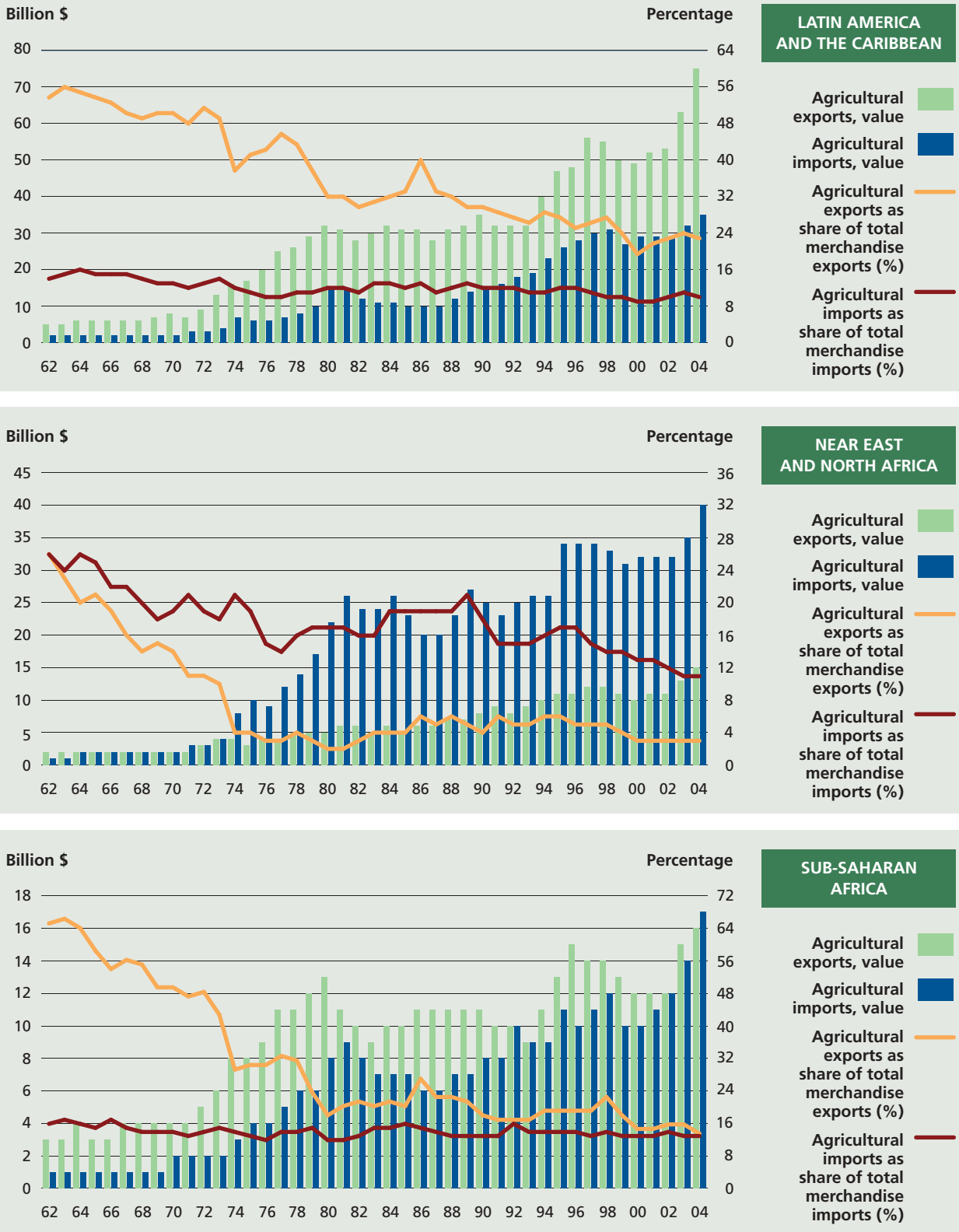






(Cont.)

FIGURE 28 *(cont.)*
Agricultural imports and exports, by region and country group



Source: FAO.

8. FISHERIES: PRODUCTION, UTILIZATION AND TRADE

- Fisheries play an important role in the world food economy. About 40 million fishers and fish farmers gain their livelihoods from capture fisheries and aquaculture. Globally, fish provide about 16 percent of animal proteins consumed, with variations from an average of 22 percent in Asia to approximately 19 percent in Africa and around 7 percent in Latin America and the Caribbean. Developments in the world supply of fish over the last decade have been overshadowed by trends in China, which has reported very strong growth in fish production, in particular from inland aquaculture, and has become the world's largest fish producer.

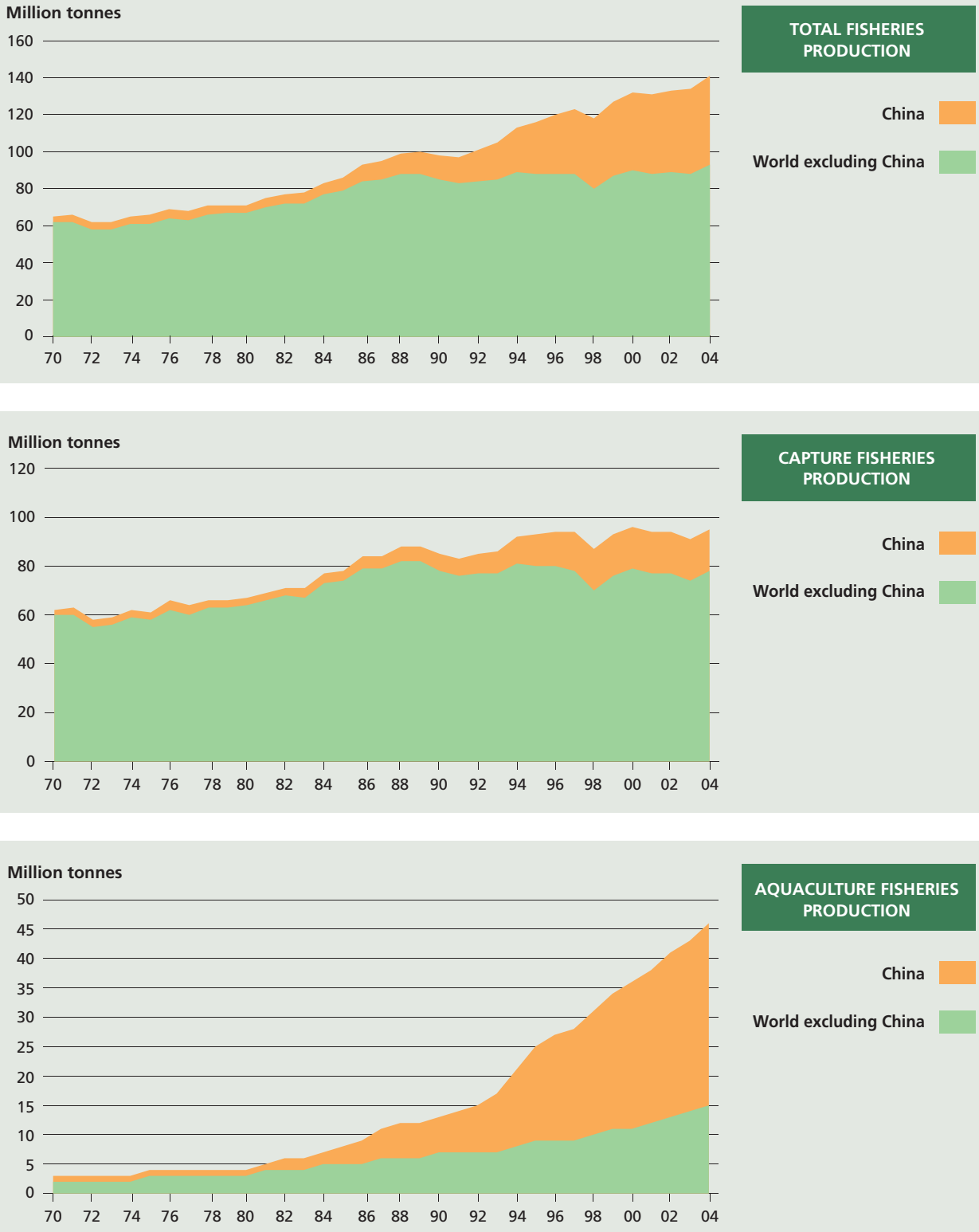
- Total fishery production in 2004 was 140.5 million tonnes, of which 45.5 was from aquaculture (Figure 29). World capture fisheries production was 95 million tonnes, about a 5 percent increase from 2003 (Figure 29). Most of the fluctuations in capture production in recent years have been due to variations in catches of Peruvian anchoveta, which are driven by climatic conditions (i.e. El Niño). In 2004, China reported a production of 16.9 million tonnes, a slight increase from 2003. Peru (9.6 million tonnes), the United States (5 million tonnes), Chile (4.9 million tonnes), Indonesia (4.8 million tonnes) and Japan (4.4 million tonnes) were other large producers.

- World aquaculture production has been increasing rapidly in recent years and now accounts for 32 percent of total fisheries production (Figure 29). Most of the expansion has been attributable to China, which now contributes over two-thirds of total aquaculture production in volume terms (30.6 million tonnes in 2004).

- In 2004, the 40 percent (live weight equivalent) of world fish production that enters international trade reached a value of $71.5 billion. Developing countries contributed slightly less than 50 percent of such exports, with the first nine exporters accounting for two-thirds of the developing country total. The developed countries absorbed more than 80 percent of total world fisheries imports in value terms (Figure 30). Japan and the United States together accounted for as much as 35 percent of total world imports of fisheries products. The importance of fisheries exports as a foreign currency earner for developing countries has increased significantly. Currently, cumulated net exports of fisheries products from developing countries ($20.4 billion in 2004) far exceed export earnings from major commodities such as coffee, bananas and rubber.

- In 2004, an estimated 34.5 million tonnes of world fishery production, all from capture fisheries, were used for non-food purposes; the majority was reduced to meal for the livestock and aquaculture industries. The remaining 106 million tonnes of world production were destined for direct human consumption. In per capita terms, while total supplies of fish for food from capture have been stagnating in recent years, per capita supplies from aquaculture have increased strongly (Figure 31). This is particularly so in China, where per capita supplies from aquaculture provide about 83 percent of total per capita food fish supplies, as compared to only 21 percent in the rest of the world.

FIGURE 29
World fish production, China and rest of the world



Source: FAO.

FIGURE 30
Exports and imports of fishery products, developed and developing countries

Note: Data exclude trade of marine mammals, crocodiles, corals, sponges, shells and aquatic plants. *Source:* FAO.

FIGURE 31
Per capita fish supply from capture and aquaculture, China and rest of the world

Note: Data exclude production of marine mammals, crocodiles, corals, sponges, shells and aquatic plants. *Source:* FAO.

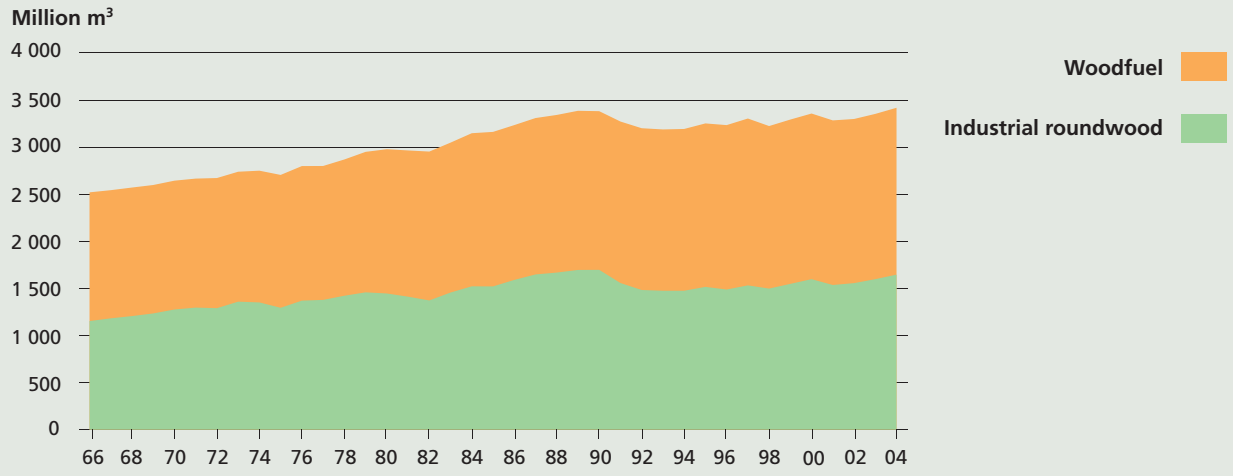
9. FORESTRY

- World roundwood production in 2004 reached an estimated 3 418 million cubic metres, about 1.9 percent more than in the preceding year (Figure 32). Total roundwood production has been steadily growing since 2002, and this is the highest level ever reached. Globally, about half of roundwood is burned as fuel (52 percent of total roundwood production in 2004). The vast majority of woodfuel is used in developing countries, where wood is often the most important source of energy. Although the developed countries' share of the total roundwood production is declining, they still account for the largest share of industrial roundwood production (over 70 percent of the total).

- In 2004 developing countries produced 2 098 million cubic metres, or 60 percent of total roundwood production (Figure 33). Almost 80 percent of this was woodfuel production, which continues to increase each year. Developing countries' production of industrial roundwood declined by 5 percent during 1996–2001, but has recently returned to the level of production in 1995. This is partly due to the expansion of planted forests in developing countries.

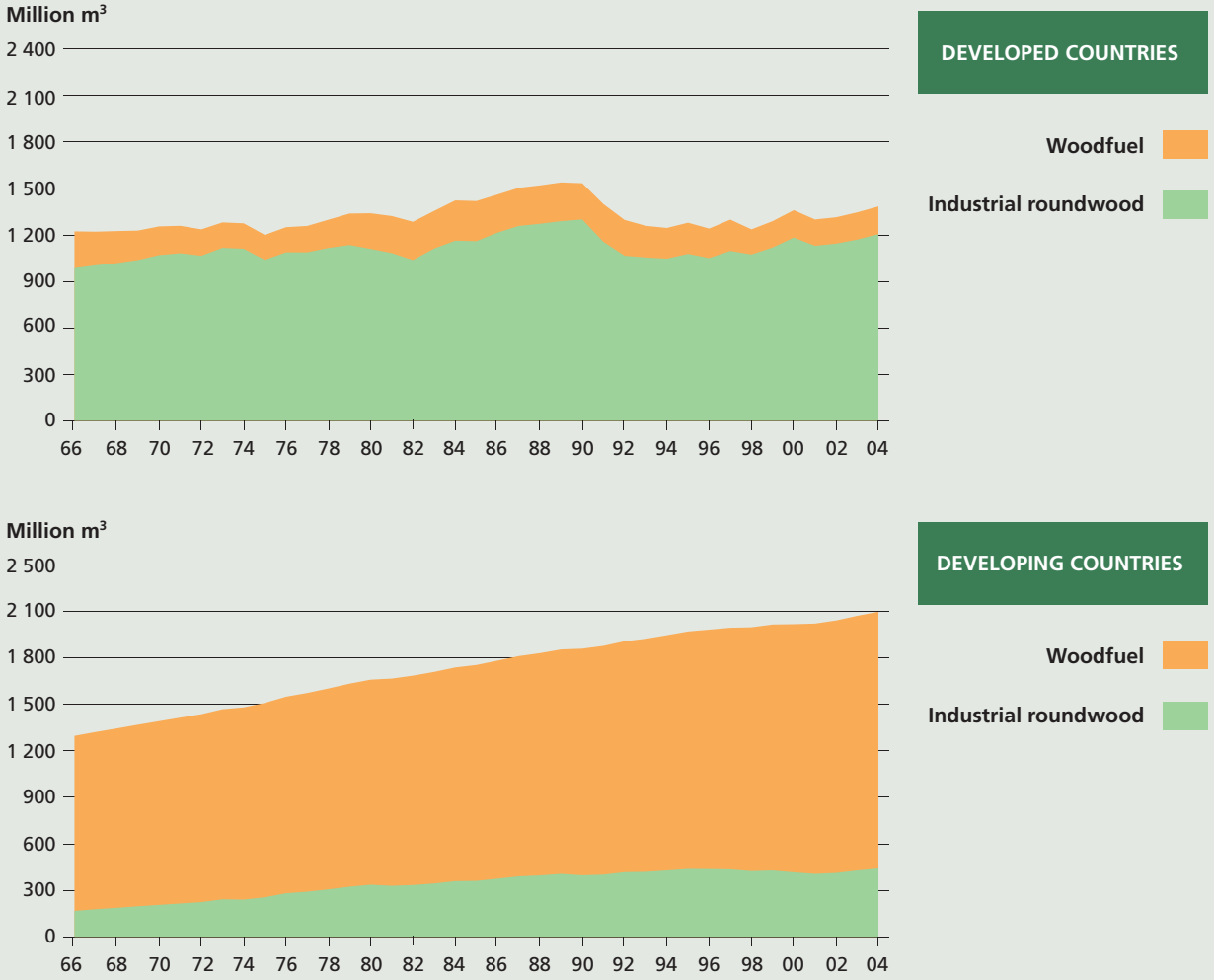
- In developed countries, industrial roundwood accounts for about 87 percent of roundwood production, while woodfuel production is of relatively marginal importance. Production in developed countries also declined significantly in the early 1990s, and is still well below the peak levels of 1989–90. This trend is largely due to changes in production in the Russian Federation and countries in Eastern Europe.

FIGURE 32
World roundwood production, 1966–2004



Source: FAO.

FIGURE 33
Roundwood production, developed and developing countries, 1966–2004



Source: FAO.

Part III

STATISTICAL ANNEX


Part III

Notes on the annex tables

Symbols

The following symbols are used in the tables:

...	= not available
ha	= hectare
hg/ha	= hectogram per hectare
hg	= hectogram
GDP	= gross domestic product
GNP	= gross national product
kcal/person/day	= calories per person per day
kg	= kilogram
US$	= US dollar

To divide decimals from whole numbers a full point (.) is used.

Technical notes

The tables do not include countries for which there were insufficient data.

Numbers displayed in the tables might be slightly different from those obtained from FAOSTAT and the World Development Indicators because of rounding.

1. Food security and nutrition (Table A2)

Source: FAO

Undernourishment

FAO's estimates of the prevalence of undernourishment are based on calculations of the amount of food available in each country (national dietary energy supply or DES) and a measure of inequality in distribution derived from household income or expenditure surveys.

Although not listed separately, provisional estimates for Afghanistan, Iraq, Papua New Guinea and Somalia have been included in the relevant regional aggregates.

Eritrea and Ethiopia were not separate entities in 1990–1992, but estimates of the number and proportion of undernourished in the former Ethiopia PDR are included in regional and subregional aggregates for that period.

Symbols used

To denote a proportion of less than 2.5 percent undernourished a dash (–) is used.

Dietary energy supply

Per capita supplies in terms of product weight are derived from the total supplies available for human consumption (i.e. food) by dividing the quantities of food by the total population actually

partaking of the food supplies during the reference period. Dietary energy supply is weighted by the total population.

2. Agricultural production and productivity (Table A3)

Source: FAO

Agricultural and per capita food production annual growth rates

The growth rates refer to the level of change of the aggregate volume of production. Production quantities of each commodity are weighted by 1999–2001 average international commodity prices and summed for each year.

3. Population and labour force indicators (Table A4)

Source: FAO

Total population

The total population usually refers to the present-in-area (de facto) population, which includes all persons physically present within the current geographical boundaries of countries at the mid-point of the reference period.

Rural population

Usually the urban area is defined and the residual from the total population is taken as rural. In practice, the criteria adopted for distinguishing between urban and rural areas vary among countries.

Agricultural population

The agricultural population is defined as all persons depending for their livelihood on agriculture, hunting, fishing or forestry. This estimate comprises all persons actively engaged in agriculture and their non-working dependants.

Economically active population

This refers to the number of all employed and unemployed persons (including those seeking work for the first time).

Economically active population in agriculture

The economically active population in agriculture is that part of the economically active population engaged in or seeking work in agriculture, hunting, fishing or forestry.

4. Land-use indicators (Table A5)

Source: FAO

Total land area

Total area excluding area under inland water bodies.

Forest and wood area

Land under natural or planted stands of trees, whether productive or not.

Agricultural area

The sum of area under arable land, permanent crops and permanent pastures.

Arable land
Land under temporary crops (double-cropped areas are counted only once), temporary meadows for mowing or pasture, land under market- and kitchen-gardens and land temporarily fallow (less than five years).

Permanent crops area
Land cultivated with crops that occupy the land for long periods and need not be replanted after each harvest.

Permanent pasture area
Land used permanently (five years or more) for herbaceous forage crops, either cultivated or growing wild (wild prairie or grazing land).

Irrigated area
Data on irrigation relate to areas equipped to provide water to the crops.

- *China*: data on irrigated area cover farmland only (areas under orchard and pastures are excluded).
- *Cuba*: data refer to state sector only.
- *Japan; Republic of Korea; Sri Lanka*: data refer to irrigated rice only.

Fertilizer consumption (use)
Data refer to total fertilizer use. The total estimates are obtained by adding the volumes of nitrogenous, phosphate and potash fertilizers expressed in terms of plant nutrients (N, P_2O_5 and K_2O, respectively).

5. Trade indicators (Table A6)

Source: FAO and World Bank (*World Development Indicators 2005*, CD-ROM and online dataset)

Data for China refer to Mainland China and Taiwan Province of China.

Total merchandise trade
Data refer to the total merchandise trade. In general, export values are f.o.b. (free on board) and import values are c.i.f. (cost, insurance and freight).

Agricultural trade
Data refer to agriculture in the narrow sense, excluding fishery and forestry products.

Food trade
Data refer to food and animals.

Agricultural GDP
The agriculture, value added (percentage of GDP), is derived from World Bank national accounts data, and OECD National Account data files. Agriculture includes forestry, fishing and hunting, as well as cultivation of crops and livestock production.

Agricultural exports relative to agricultural GDP
Agricultural exports relative to agricultural GDP was weighted by agriculture, value added.

6. Economic indicators (Table A7)

Source: World Bank (*World Development Indicators 2005*, CD-ROM and online dataset)

Weighting: GNI per capita (current US$), GDP per capita (annual percentage growth) and GDP per capita, PPP (current international $) were weighted by the total population. GDP (annual percentage growth) and agriculture, value added (percentage of GDP), were weighted by GDP (constant 2000 US$). Agriculture, value added (annual percentage growth), was weighted by agriculture, value added (constant 2000 US$). Agriculture, value added per worker, was weighted by economically active population in agriculture.

Data for China refer to Mainland China and Taiwan Province of China.

National poverty headcount
National poverty rate is the percentage of the population living below the national poverty line. National estimates are based on population-weighted subgroup estimates from household surveys.

GNI per capita (current US$)
GNI per capita is the gross national income, converted to US dollars using the World Bank Atlas method, divided by the mid-year population.

GDP (annual percentage growth)
Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2000 US dollars.

GDP per capita (annual percentage growth)
Annual percentage growth rate of GDP per capita based on constant local currency. GDP per capita is the GDP divided by mid-year population.

GDP per capita, PPP (current international $)
GDP per capita based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the US dollar has in the United States of America.

Agriculture, value added per worker
Agriculture, value added per worker, is a measure of agricultural productivity. Value added in agriculture measures the output of the agriculture sector less the value of intermediate inputs. Agriculture comprises value added from forestry, hunting and fishing as well as cultivation of crops and livestock production.

GDP, constant 2000 US$
Data are in constant 2000 US dollars. Dollar figures for GDP are converted from domestic currencies using 2000 official exchange rates.

7. Total factor productivity (Table A8)

Source: FAO
Total factor productivity (TFP) measures the quantity of output divided by a measure of the quantity of inputs used. The approach taken here is to apply data envelopment analysis (DEA) methods to output and input data obtained from FAOSTAT to estimate a Malmquist index of TFP (Malmquist, 1953). The data cover the periods 1961–80 and 1981–2000. The resulting change in total productivity index can be disaggregated into a technology component and a technical efficiency component. A distinct advantage of the Malmquist DEA method is that no information on input prices is required. The data used are as follows: Output is net agricultural production, i.e. excluding seed and feed, in constant (1989–91) "international dollars"; Inputs are: Land: arable and land under permanent crops; Labour: total population economically active in agriculture; Fertilizer: total consumption (in nutrient-equivalent terms) of nitrogen, potash and phosphates; Livestock: the weighted sum of camels, buffalo, horses, cattle, asses, pigs, sheep, goats and poultry (using the weights suggested by Hayami and Ruttan, 1985); Physical capita: number of tractors in use. We also included the proportion of arable and permanent cropland that is irrigated as well as the ratio of land that is arable and under permanent crops to agricultural area (which also includes permanent pastures).

Data for Ethiopia and Eritrea start in 1993 instead of 1981.

Country and regional notes

Data for China include data for Hong Kong Special Administrative Region, Macao Special Administrative Region and Taiwan Province of China, unless otherwise noted.

Data are shown for Belgium and Luxembourg separately whenever possible, but in most cases before 2000 the data are aggregated in Belgium/Luxembourg.

Data are shown whenever possible for the individual countries formed from the Ethiopia PDR – Eritrea and Ethiopia. Data for the years prior to 1992 are shown under Ethiopia PDR.

Data for Yemen refer to that country from 1990 onward; data for previous years refer to aggregated data of the former People's Democratic Republic of Yemen and the former Yemen Arab Republic unless otherwise noted.

South Africa is included in sub-Saharan Africa and not in the developed countries.

TABLE A1
Countries and territories used for statistical purposes in this publication

Developing countries				Developed countries	
Asia and the Pacific/ Far East and Oceania	**Latin America and the Caribbean**	**Near East and North Africa**	**Sub-Saharan Africa**	**Developed market economies**	**Countries in transition**
American Samoa	Anguilla	Afghanistan	Angola	Andorra	Albania
Bangladesh	Antigua and Barbuda	Algeria	Benin	Australia	Armenia
Bhutan	Argentina	Bahrain	Botswana	Austria	Azerbaijan
Brunei Darussalam	Aruba	Cyprus	Burkina Faso	Belgium–Luxembourg	Belarus
Cambodia	Bahamas	Egypt	Burundi	Canada	Bosnia and Herzegovina
China, Hong Kong SAR	Barbados	Iran, Islamic Rep. of	Cameroon	Denmark	Bulgaria
China, Macao SAR	Belize	Iraq	Cape Verde	Faeroe Islands	Croatia
China, Mainland	Bermuda	Jordan	Central African Republic	Finland	Czech Republic
China, Taiwan Province of	Bolivia	Kuwait	Chad	France	Estonia
Cocos (Keeling) Islands	Brazil	Lebanon	Comoros	Germany	Georgia
Cook Islands	British Virgin Islands	Libyan Arab Jamahiriya	Congo	Gibraltar	Hungary
Fiji	Cayman Islands	Morocco	Congo, Democratic Republic of the	Greece	Kazakhstan
French Polynesia	Chile	Occupied Palestinian Territory	Côte d'Ivoire	Greenland	Kyrgyzstan
Guam	Colombia	Oman	Djibouti	Iceland	Latvia
India	Costa Rica	Qatar	Equatorial Guinea	Ireland	Lithuania
Indonesia	Cuba	Saudi Arabia	Eritrea	Israel	Macedonia, The former Yugoslav Republic of
Kiribati	Dominica	Syrian Arab Republic	Ethiopia	Italy	Moldova
Korea, Dem. People's Republic of	Dominican Republic	Tunisia	Gabon	Japan	Poland
Korea, Republic of	Ecuador	Turkey	Gambia	Liechtenstein	Romania
Lao People's Democratic Republic	El Salvador	United Arab Emirates	Ghana	Malta	Russian Federation
Malaysia	Falkland Islands (Malvinas)	Yemen	Guinea	Monaco	Serbia and Montenegro
Maldives	French Guiana		Guinea-Bissau	Netherlands	Slovakia
Marshall Islands	Grenada		Kenya	New Zealand	Slovenia
Micronesia, Fed. States of	Guadeloupe		Lesotho	Norway	Tajikistan
Mongolia	Guatemala		Liberia	Portugal	Turkmenistan
Myanmar	Guyana		Madagascar	San Marino	Ukraine
Nauru	Haiti		Malawi	Spain	Uzbekistan
Nepal	Honduras		Mali	Sweden	
New Caledonia	Jamaica		Mauritania	Switzerland	
Niue	Martinique		Mauritius	United Kingdom	
Norfolk Island	Mexico		Mozambique	United States of America	
Northern Marianas Islands	Montserrat		Namibia		
Pakistan	Netherlands Antilles		Niger		
Palau	Nicaragua		Nigeria		
Papua New Guinea	Panama		Réunion		
Philippines	Paraguay		Rwanda		
Samoa	Peru		Saint Helena		

TABLE A1 *(cont.)*

Developing countries				Developed countries	
Asia and the Pacific/ Far East and Oceania	**Latin America and the Caribbean**	**Near East and North Africa**	**Sub-Saharan Africa**	**Developed market economies**	**Countries in transition**
Singapore	Puerto Rico		Sao Tome and Principe		
Solomon Islands	Saint Kitts and Nevis		Senegal		
Sri Lanka	Saint Lucia		Seychelles		
Thailand	Saint Vincent and the Grenadines		Sierra Leone		
Timor-Leste	Suriname		Somalia		
Tokelau	Trinidad and Tobago		South Africa		
Tonga	Turks and Caicos Islands		Sudan		
Tuvalu	United States Virgin Islands		Swaziland		
Vanuatu	Uruguay		Tanzania, United Republic of		
Viet Nam	Venezuela, Bolivarian Republic of		Togo		
Wallis and Futuna Islands			Uganda		
			Zambia		
			Zimbabwe		

TABLE A2
Food security and nutrition

	Number of people undernourished (Millions)		Proportion of undernourished in total population (%)		Dietary energy supply (kcal/person/day)		(Average annual % increase)
	1990–92	2001–03	1990–92	2001–03	1990–92	2001–03	1990–92 –2001–03
WORLD	**...**	**...**	**...**	**...**	**2 640**	**2 790**	**0.50**
DEVELOPING COUNTRIES	**823.1**	**820.2**	**20**	**17**	**2 520**	**2 660**	**0.49**
ASIA AND THE PACIFIC	**569.7**	**524**	**20**	**16**	**2 510**	**2 670**	**0.56**
Bangladesh	39.2	43.1	35	30	2 070	2 200	0.56
Brunei Darussalam	...	...	...	...	2 800	2 850	0.16
Cambodia	4.4	4.6	43	33	1 860	2 060	0.93
China	193.6	150	16	12	2 710	2 940	0.74
Fiji	...	...	...	...	2 640	2 960	1.05
French Polynesia	...	...	...	...	2 860	2 900	0.13
India	214.8	212	25	20	2 370	2 440	0.26
Indonesia	16.4	13.8	9	6	2 700	2 880	0.59
Kiribati	...	...	...	...	2 650	2 840	0.63
Korea, Democratic People's Rep. of	3.6	7.9	18	35	2 470	2 150	–1.25
Korea, Republic of	0.8	0.8	–	–	3 000	3 040	0.12
Lao People's Dem. Rep.	1.2	1.2	29	21	2 110	2 320	0.87
Malaysia	0.5	0.6	3	3	2 830	2 870	0.13
Maldives	...	...	...	...	2 380	2 560	0.66
Mongolia	0.8	0.7	34	28	2 060	2 250	0.81
Myanmar	4.0	2.7	10	5	2 630	2 900	0.89
Nepal	3.9	4.1	20	17	2 340	2 450	0.42
New Caledonia	...	...	...	...	2 790	2 780	–0.03
Pakistan	27.8	35.2	24	23	2 300	2 340	0.16
Philippines	16.2	15.2	26	19	2 260	2 450	0.74
Samoa	...	...	...	...	2 570	2 910	1.14
Solomon Islands	...	...	...	...	2 020	2 250	0.99
Sri Lanka	4.8	4.1	28	22	2 230	2 390	0.63
Thailand	16.8	13.4	30	21	2 200	2 410	0.83
Timor-Leste	...	...	...	...	2 560	2 780	0.75
Vanuatu	...	...	...	...	2 530	2 590	0.21
Viet Nam	20.6	13.8	31	17	2 180	2 580	1.54
LATIN AMERICA AND THE CARIBBEAN	**59.4**	**52.4**	**13**	**10**	**2 700**	**2 870**	**0.56**
Argentina	0.7	0.9	...	...	3 000	2 980	–0.06
Bahamas	...	...	...	...	2 620	2 710	0.31
Barbados	...	...	...	...	3 060	3 100	0.12
Belize	...	...	...	...	2 650	2 840	0.63
Bolivia	1.9	2	28	23	2 110	2 220	0.46
Brazil	18.5	14.4	12	8	2 810	3 060	0.78
Chile	1.1	0.6	8	4	2 610	2 860	0.84
Colombia	6.1	5.9	17	14	2 440	2 580	0.51
Costa Rica	0.2	0.2	6	4	2 720	2 850	0.43
Cuba	0.7	0.2	7	...	2 720	3 190	1.46
Dominica	...	...	...	...	2 940	2 770	–0.54
Dominican Republic	1.9	2.3	27	27	2 260	2 290	0.12
Ecuador	0.9	0.6	8	5	2 510	2 710	0.70
El Salvador	0.6	0.7	12	11	2 490	2 560	0.25

TABLE A2 *(cont.)*

	Number of people undernourished *(Millions)*		Proportion of undernourished in total population *(%)*		Dietary energy supply *(kcal/person/day)*		*(Average annual % increase)*
	1990–92	2001–03	1990–92	2001–03	1990–92	2001–03	1990–92 –2001–03
Grenada	...	...	...	...	2 830	2 930	0.32
Guatemala	1.4	2.8	16	23	2 350	2 210	–0.56
Guyana	0.2	0.1	21	9	2 350	2 730	1.37
Haiti	4.6	3.8	65	47	1 780	2 090	1.47
Honduras	1.1	1.5	23	22	2 310	2 360	0.19
Jamaica	0.3	0.3	14	10	2 500	2 680	0.63
Mexico	4.6	5.1	5	5	3 100	3 180	0.23
Netherlands Antilles	...	...	...	...	2 510	2 590	0.29
Nicaragua	1.2	1.5	30	27	2 220	2 290	0.28
Panama	0.5	0.8	21	25	2 320	2 260	–0.24
Paraguay	0.8	0.8	18	15	2 400	2 530	0.48
Peru	9.3	3.3	42	12	1 960	2 570	2.49
Saint Kitts and Nevis	...	...	...	...	2 580	2 700	0.41
Saint Lucia	...	...	...	...	2 740	2 950	0.67
Saint Vincent and the Grenadines	...	...	...	...	2 300	2 580	1.05
Suriname	0.1	0	13	10	2 530	2 660	0.46
Trinidad and Tobago	0.2	0.1	13	11	2 630	2 760	0.44
Uruguay	0.2	0.1	7	3	2 660	2 850	0.63
Venezuela, Bolivarian Republic of	2.3	4.5	11	18	2 460	2 350	–0.42
NEAR EAST AND NORTH AFRICA	**25**	**37.6**	**8**	**9**	**3 050**	**3 110**	**0.18**
Algeria	1.3	1.5	5	5	2 920	3 040	0.37
Cyprus	...	...	...	...	3 100	3 240	0.40
Egypt	2.5	2.4	4	3	3 200	3 350	0.42
Iran, Islamic Republic of	2.1	2.7	4	4	2 980	3 090	0.33
Jordan	0.1	0.4	4	7	2 820	2 680	–0.46
Kuwait	0.5	0.1	24	5	2 340	3 060	2.47
Lebanon	0.1	0.1	...	3	3 160	3 170	0.03
Libyan Arab Jamahiriya	0	0	...	...	3 270	3 330	0.17
Morocco	1.5	1.9	6	6	3 030	3 070	0.12
Saudi Arabia	0.7	0.9	4	4	2 770	2 820	0.16
Syrian Arab Republic	0.7	0.6	5	4	2 830	3 060	0.71
Tunisia	0.1	0.1	...	...	3 150	3 250	0.28
Turkey	1	2	...	3	3 490	3 340	–0.40
United Arab Emirates	0.1	0.1	4	...	2 930	3 220	0.86
Yemen	4.2	7.1	34	37	2 040	2 020	–0.09
SUB-SAHARAN AFRICA	**169**	**206.2**	**35**	**32**	**2 170**	**2 260**	**0.37**
Angola	5.6	5	58	38	1 780	2 070	1.38
Benin	1	0.9	20	14	2 330	2 530	0.75
Botswana	0.3	0.5	23	30	2 260	2 180	–0.33
Burkina Faso	1.9	2.1	21	17	2 350	2 460	0.42
Burundi	2.7	4.5	48	67	1 900	1 640	–1.33
Cameroon	4	4	33	25	2 120	2 270	0.62
Central African Republic	1.5	1.7	50	45	1 860	1 940	0.38
Chad	3.5	2.7	58	33	1 780	2 160	1.77
Comoros	...	...	...	...	1 910	1 750	–0.79

TABLE A2 *(cont.)*

	Number of people undernourished *(Millions)*		Proportion of undernourished in total population *(%)*		Dietary energy supply *(kcal/person/day)*		*(Average annual % increase)*
	1990–92	2001–03	1990–92	2001–03	1990–92	2001–03	1990–92 –2001–03
Congo	1.4	1.2	54	34	1 860	2 150	1.33
Congo, Democratic Republic of the	12.2	37	31	72	2 170	1 610	–2.68
Côte d'Ivoire	2.3	2.2	18	14	2 470	2 630	0.57
Djibouti	...	...	...	...	1 800	2 220	1.92
Eritrea	...	2.9	...	73	...	1 520	...
Ethiopia	...	31.5	...	46	...	1 860	...
Gabon	0.1	0.1	10	5	2 450	2 670	0.78
Gambia	0.2	0.4	22	27	2 370	2 280	–0.35
Ghana	5.8	2.4	37	12	2 080	2 650	2.23
Guinea	2.5	2	39	24	2 110	2 420	1.25
Guinea-Bissau	…	…	…	…	2 300	2 070	–0.95
Kenya	9.5	9.7	39	31	1 980	2 150	0.75
Lesotho	0.3	0.2	17	12	2 440	2 620	0.65
Liberia	0.7	1.6	34	49	2 210	1 940	–1.18
Madagascar	4.3	6.5	35	38	2 080	2 040	–0.18
Malawi	4.8	4	50	34	1 880	2 140	1.18
Mali	2.7	3.5	29	28	2 220	2 220	0.00
Mauritania	0.3	0.3	15	10	2 560	2 780	0.75
Mauritius	0.1	0.1	6	6	2 890	2 960	0.22
Mozambique	9.2	8.3	66	45	1 730	2 070	1.64
Namibia	0.5	0.4	34	23	2 070	2 260	0.80
Niger	3.2	3.7	41	32	2 020	2 160	0.61
Nigeria	11.8	11.5	13	9	2 540	2 700	0.56
Rwanda	2.8	3	43	36	1 950	2 070	0.54
Sao Tome and Principe	...	...	...	...	2 270	2 440	0.66
Senegal	1.8	2.2	23	23	2 280	2 310	0.12
Seychelles	...	...	...	...	2 310	2 460	0.57
Sierra Leone	1.9	2.4	46	50	1 990	1 930	–0.28
South Africa	...	...	...	...	2 830	2 940	0.35
Sudan	7.9	8.8	31	27	2 170	2 260	0.37
Swaziland	0.1	0.2	14	19	2 450	2 360	–0.34
Tanzania, United Republic of	9.9	16.1	37	44	2 050	1 960	–0.41
Togo	1.2	1.2	33	25	2 150	2 320	0.69
Uganda	4.2	4.6	24	19	2 270	2 380	0.43
Zambia	4	5.1	48	47	1 930	1 930	0.00
Zimbabwe	4.8	5.7	45	45	1 980	2 010	0.14
DEVELOPED MARKET ECONOMIES	**...**	**...**	**...**	**...**	**3 330**	**3 490**	**0.43**
Australia	...	...	...	...	3 170	3 120	–0.14
Austria	...	...	...	...	3 510	3 740	0.58
Belgium	...	...	...	...	...	3 640	...
Canada	...	...	...	...	3 060	3 590	1.46
Denmark	...	...	...	...	3 230	3 450	0.60
Finland	...	...	...	...	3 150	3 150	0.00
France	...	...	...	...	3 540	3 640	0.25
Germany	...	...	...	...	3 390	3 490	0.26

TABLE A2 *(cont.)*

	Number of people undernourished *(Millions)*		Proportion of undernourished in total population *(%)*		Dietary energy supply *(kcal/person/day)*		*(Average annual % increase)*
	1990–92	2001–03	1990–92	2001–03	1990–92	2001–03	1990–92 –2001–03
Greece	...	...	...	...	3 570	3 680	0.28
Iceland	...	...	...	...	3 100	3 240	0.40
Ireland	...	...	...	...	3 620	3 690	0.17
Israel	...	...	...	...	3 410	3 680	0.70
Italy	...	...	...	...	3 590	3 670	0.20
Japan	...	...	...	...	2 810	2 770	–0.13
Luxembourg	...	...	...	...	...	3 710	...
Malta	...	...	...	...	3 240	3 530	0.78
Netherlands	...	...	...	...	3 340	3 440	0.27
New Zealand	...	...	...	...	3 200	3 200	0.00
Norway	...	...	...	...	3 180	3 480	0.82
Portugal	...	...	...	...	3 450	3 750	0.76
Spain	...	...	...	...	3 300	3 410	0.30
Sweden	...	...	...	...	2 990	3 160	0.50
Switzerland	...	...	...	...	3 310	3 500	0.51
United Kingdom	...	...	...	...	3 270	3 440	0.46
United States of America	...	...	...	...	3 500	3 770	0.68
	1993–95	2001–03	1993–95	2001–03	1993–95	2001–03	1993–05–2001–03
COUNTRIES IN TRANSITION	**23.4**	**24.7**	**6**	**6**	**2 950**	**2 990**	**0.17**
Albania	0.2	0.2	5	6	2 870	2 860	–0.04
Armenia	1.8	0.9	52	29	1 960	2 260	1.80
Azerbaijan	2.6	0.8	34	10	2 140	2 620	2.56
Belarus	0.1	0.3	...	3	3 190	2 960	–0.93
Bosnia and Herzegovina	0.3	0.4	9	9	2 690	2 710	0.09
Bulgaria	0.7	0.7	8	9	2 900	2 850	–0.22
Croatia	0.7	0.3	16	7	2 520	2 770	1.19
Czech Republic	0.2	0.1	...	...	3 080	3 240	0.64
Estonia	0.1	0	9	3	2 760	3 160	1.71
Georgia	2.4	0.7	44	13	2 050	2 520	2.61
Hungary	0.1	0	...	...	3 340	3 500	0.59
Kazakhstan	0.2	1.2	...	8	3 280	2 710	–2.36
Kyrgyzstan	1	0.2	21	4	2 400	3 050	3.04
Latvia	0.1	0.1	3	3	2 960	3 020	0.25
Lithuania	0.2	0	4	...	2 870	3 370	2.03
Macedonia, The former Yugoslav Republic of	0.3	0.1	15	7	2 520	2 800	1.33
Moldova	0.2	0.5	5	11	2 930	2 730	–0.88
Poland	0.3	0.3	...	...	3 340	3 370	0.11
Romania	0.3	0.1	...	...	3 210	3 520	1.16
Russian Federation	6.4	4.1	4	3	2 930	3 080	0.63
Serbia and Montenegro	0.5	1.1	5	10	2 910	2 670	–1.07
Slovakia	0.2	0.3	4	6	2 920	2 830	–0.39
Slovenia	0.1	0.1	3	3	2 950	2 970	0.08
Tajikistan	1.2	3.8	22	61	2 310	1 840	–2.80
Turkmenistan	0.5	0.4	12	8	2 550	2 750	0.95
Ukraine	1.2	1.2	...	3	3 040	3 030	–0.04
Uzbekistan	1.7	6.7	8	26	2 660	2 270	–1.96

TABLE A3
Agricultural production and productivity

	Crop and livestock production		Per capita food production		Cereal yields	
	(Average annual rate of growth [%])				*(hg/ha)*	
	1986–1995	1996–2005	1986–1995	1996–2005	1993–1995	2003–2005
WORLD	**1.9**	**2.4**	**0.3**	**1.1**	**27 711**	**32 389**
DEVELOPED COUNTRIES	**2.4**	**0.9**	**–0.6**	**0.2**	**35 245**	**39 255**
DEVELOPING COUNTRIES	**3.7**	**3.3**	**–0.7**	**–0.0**	**19 057**	**21 747**
ASIA AND THE PACIFIC	**4.1**	**3.5**	**–2.5**	**0.1**	**23 623**	**28 049**
Bangladesh	1.3	3.8	–1.1	1.6	25 722	35 331
Bhutan	1.9	–0.6	–0.1	–3.3	13 213	15 990
Brunei Darussalam	0.1	11.4	–2.6	8.8	18 553	11 225
Cambodia	5.6	3.1	2.0	0.5	15 204	20 616
China, Mainland	5.2	4.5	3.8	3.7	...	...
China, Taiwan Province of	0.7	–0.4	–0.4	–1.1	...	...
Fiji	2.6	–0.8	1.8	–1.9	24 083	23 197
French Polynesia	0.2	0.4	–1.9	–1.2	...	...
Guam	1.3	2.3	–0.7	0.8	20 000	20 000
India	3.2	2.1	1.2	0.4	21 040	23 909
Indonesia	4.3	2.2	2.6	0.8	38 749	42 783
Kiribati	...	...	–2.2	1.2	...	...
Korea, Dem. People's Rep. of	...	...	–1.8	1.9	44 548	34 077
Korea, Republic of	...	...	1.1	0.4	57 800	62 332
Lao People's Dem. Rep.	...	...	0.2	3.9	24 474	31 795
Malaysia	4.5	3.9	1.8	1.7	30 514	32 928
Maldives	2.3	1.9	–0.8	–1.1	11 905	10 000
Micronesia, Federated States of	...	0.0		–0.4	...	...
Mongolia	–1.1	–0.1	–3.3	–1.2	7 801	8 076
Myanmar	1.7	4.7	–0.1	3.2	28 946	35 919
Nepal	3.6	2.9	1.2	0.6	18 411	22 844
New Caledonia	0.5	1.2	–1.7	–0.8	28 548	37 314
Pakistan	4.9	2.7	2.1	0.1	19 463	24 380
Papua New Guinea	1.6	2.3	–0.9	–0.0	28 650	35 394
Philippines	2.5	2.9	0.1	1.0	22 630	29 464
Samoa	–2.4	1.3	–3.0	0.4	...	...
Singapore	–12.0	–0.5	–14.1	–2.7	...	...
Solomon Islands	0.7	2.0	–2.5	–1.0	0	39 011
Sri Lanka	0.9	0.6	–0.4	–0.3	29 929	34 282
Thailand	2.1	1.5	0.8	0.4	23 826	27 251
Timor-Leste	3.6	0.6	1.1	0.4	20 248	19 263
Tonga	–0.1	0.6	–0.3	–0.1	...	...
Vanuatu	0.7	1.3	–1.9	–1.2	5 308	5 385
Viet Nam	4.6	5.4	2.4	4.0	34 634	46 508
LATIN AMERICA AND THE CARIBBEAN	**2.6**	**3.1**	**–0.2**	**–0.0**	**22 023**	**26 666**
Antigua and Barbuda	0.1	0.8	–0.4	–0.2	17 579	15 764
Argentina	2.1	3.0	0.7	1.7	28 208	37 705
Bahamas	3.1	2.8	1.2	1.5	17 287	21 427
Barbados	–0.0	1.1	–0.4	0.7	26 722	78 156

TABLE A3 *(cont.)*

	Crop and livestock production		Per capita food production		Cereal yields	
	(Average annual rate of growth [%])				*(hg/ha)*	
	1986–1995	1996–2005	1986–1995	1996–2005	1993–1995	2003–2005
Belize	6.2	4.6	3.4	2.3	18 872	26 678
Bolivia	4.3	3.2	1.9	1.1	15 132	18 574
Brazil	3.4	4.0	1.6	2.7	23 841	31 500
Chile	5.5	2.7	3.8	1.4	44 026	56 213
Colombia	3.5	1.8	1.5	0.1	25 518	35 667
Costa Rica	5.1	1.3	2.5	–0.9	36 708	40 014
Cuba	–4.3	4.5	–5.1	4.2	16 971	30 757
Dominica	0.5	0.5	0.3	0.0	12 906	13 333
Dominican Republic	–0.3	1.1	–2.0	–0.4	37 394	41 772
Ecuador	4.4	2.8	2.0	1.2	19 831	24 850
El Salvador	0.3	1.0	–1.4	–0.7	18 826	24 624
Falkland Islands (Malvinas)	0.8	–0.6	0.8	–3.4	…	…
French Guiana	9.8	–0.1	4.9	–3.0	33 652	38 916
Grenada	–0.8	–0.1	–0.4	0.2	9 881	10 000
Guadeloupe	–2.1	4.5	–3.5	3.6	0	0
Guatemala	3.4	1.6	0.8	–1.1	18 726	17 470
Guyana	4.5	1.2	4.6	0.9	36 850	37 950
Haiti	–2.1	1.0	–4.1	–0.3	9 297	8 239
Honduras	3.2	5.3	0.2	2.6	13 934	10 954
Jamaica	…	…	2.1	–1.1	14 470	11 615
Martinique	–0.8	2.8	–1.6	2.1	…	…
Mexico	2.1	1.8	0.2	0.3	25 592	28 718
Nicaragua	0.1	5.5	–2.5	2.8	17 312	17 779
Panama	0.9	1.2	–1.2	–0.7	18 631	19 578
Paraguay	3.2	1.6	0.2	–0.8	20 735	22 236
Peru	3.2	4.6	1.2	2.9	27 449	33 992
Puerto Rico	–0.2	–1.2	–1.1	–1.8	15 477	17 308
Saint Kitts and Nevis	–1.7	–2.9	–2.0	–2.3	…	…
Saint Lucia	3.7	–3.0	2.2	–3.8	0	0
Saint Vincent and the Grenadines	–0.3	–0.8	–1.2	–1.4	33 333	31 550
Trinidad and Tobago	1.4	1.9	0.7	1.5	35 330	27 225
Uruguay	2.5	2.5	1.8	1.8	28 798	42 785
Venezuela, Bolivarian Republic of	1.6	1.8	–0.9	–0.2	29 495	33 287
NEAR EAST AND NORTH AFRICA	**3.0**	**2.7**	**1.1**	**0.4**	**22 683**	**24 478**
Algeria	3.1	3.6	0.6	1.9	7 737	14 677
Bahrain	1.3	4.1	–2.3	1.6	…	…
Cyprus	2.3	0.9	0.9	0.0	26 343	23 706
Egypt	4.0	3.8	1.8	1.8	59 201	75 283
Iran, Islamic Republic of	4.9	2.9	2.3	1.6	17 819	24 114
Jordan	…	…	1.5	–1.0	13 631	13 466
Kuwait	…	…	18.0	5.1	59 983	19 747
Lebanon	…	…	4.4	–2.5	22 638	23 771
Libyan Arab Jamahiriya	2.9	1.3	0.6	–0.7	6 825	6 262
Morocco	2.8	6.7	0.8	5.0	8 639	12 817
Occupied Palestinian Territory	…	2.7	…	–1.0	9 706	20 755

TABLE A3 *(cont.)*

	Crop and livestock production		Per capita food production		Cereal yields	
	(Average annual rate of growth [%])				*(hg/ha)*	
	1986–1995	1996–2005	1986–1995	1996–2005	1993–1995	2003–2005
Oman	2.3	4.0	–1.5	0.9	21 845	23 316
Qatar	13.8	2.1	9.6	0.3	31 354	35 615
Saudi Arabia	5.0	3.5	1.0	0.4	42 644	44 304
Tunisia	1.7	9.0	–0.3	7.8	10 685	15 391
Turkey	2.0	1.5	0.1	0.0	20 681	23 986
United Arab Emirates	10.5	10.1	5.4	7.7	14 853	31 191
Yemen	4.1	3.0	–0.2	–0.5	11 020	7 719
SUB-SAHARAN AFRICA	**3.3**	**2.6**	**–0.4**	**–0.2**	**12 808**	**13 357**
Benin	6.5	4.4	3.2	1.7	9 875	11 473
Botswana	1.9	–1.7	–1.0	–3.2	3 252	5 139
Burkina Faso	4.2	4.8	1.3	1.8	8 584	9 592
Burundi	0.8	–0.0	–1.3	–1.9	13 286	13 359
Cameroon	2.5	2.3	–0.4	0.2	10 343	16 130
Cape Verde	8.2	2.0	6.0	–0.2	2 908	2 302
Central African Republic	3.4	2.8	1.0	1.1	9 018	10 464
Chad	4.1	3.3	1.1	0.2	6 110	7 110
Comoros	3.3	1.6	0.4	–1.3	13 327	13 376
Congo	1.4	2.0	–1.9	–0.9	7 698	8 056
Congo, Dem. Republic of the	0.4	–1.0	–2.8	–3.3	7 782	7 666
Côte d'Ivoire	3.0	1.8	–0.2	0.0	9 458	12 656
Djibouti	1.5	3.8	–2.6	1.4	16 667	16 111
Equatorial Guinea	3.3	–0.0	0.8	–2.6	...	...
Eritrea	...	2.8	...	–0.6	4 869	2 853
Ethiopia	...	3.6	...	0.9	11 062	12 607
Gabon	2.0	1.4	–1.1	–0.8	18 482	16 410
Gambia	1.4	8.1	–2.3	4.9	11 293	11 549
Ghana	6.8	4.2	3.8	2.0	13 406	14 372
Guinea	3.6	3.0	0.4	1.1	11 777	14 760
Guinea-Bissau	2.7	3.3	–0.2	0.4	14 095	12 041
Kenya	...	...	–0.0	–0.1	17 108	14 085
Lesotho	...	...	–0.8	1.2	8 555	9 063
Liberia	–5.3	6.9	–5.2	1.3	11 061	8 889
Madagascar	1.2	1.2	–1.6	–1.7	19 391	23 208
Malawi	3.2	4.5	–0.0	2.2	12 329	11 498
Mali	4.3	3.2	1.6	0.3	7 969	8 723
Mauritania	1.7	1.7	–0.7	–1.2	7 629	10 755
Mauritius	0.5	0.9	–0.5	–0.1	39 417	34 363
Mozambique	2.0	3.2	0.1	1.1	5 793	9 210
Namibia	2.4	3.5	–1.3	1.3	2 988	4 414
Niger	4.8	5.0	1.4	1.3	3 106	3 938
Nigeria	7.3	2.3	4.2	–0.4	11 653	10 567
Réunion	3.5	1.2	1.7	–0.4	65 429	67 244
Rwanda	–2.2	6.1	–0.9	0.7	12 076	9 723
Sao Tome and Principe	2.1	4.1	–0.2	1.5	22 359	24 242
Senegal	3.5	3.6	0.8	1.1	8 203	11 227

TABLE A3 *(cont.)*

	Crop and livestock production		Per capita food production		Cereal yields	
	(Average annual rate of growth [%])				*(hg/ha)*	
	1986–1995	1996–2005	1986–1995	1996–2005	1993–1995	2003–2005
Seychelles	1.6	–0.5	0.5	–1.4	...	...
Sierra Leone	0.4	0.2	–1.0	–2.5	11 813	12 229
South Africa	0.4	3.7	–1.8	2.6	20 518	29 068
Sudan	3.2	3.1	0.9	0.8	4 788	5 103
Swaziland	–0.6	0.9	–3.5	–0.6	16 075	11 137
Tanzania, United Republic of	1.5	1.6	–1.8	–0.6	12 919	14 694
Togo	3.2	3.0	0.5	0.1	8 162	10 399
Uganda	3.2	2.5	–0.2	–0.7	15 357	16 670
Zambia	2.6	3.2	–0.3	1.5	16 839	15 842
Zimbabwe	–0.3	1.4	–3.1	0.3	11 540	6 759
DEVELOPED MARKET ECONOMIES	**0.5**	**1.0**	**–0.3**	**–0.4**	**46 523**	**49 038**
Australia	2.1	1.9	0.6	0.8	17 059	19 602
Austria	0.9	0.6	0.2	0.5	53 379	57 376
Belgium–Luxembourg	2.0	...	1.6	...	67 256	0
Canada	2.1	2.0	0.8	1.1	26 473	29 624
Denmark	0.8	0.1	0.6	–0.2	58 331	60 797
Finland	–0.7	1.1	–1.1	0.9	35 342	32 844
France	0.1	0.2	–0.4	–0.2	65 044	68 756
Germany	–0.9	0.8	–1.4	0.6	58 819	64 974
Greece	1.3	–0.8	0.7	–1.3	37 173	36 988
Iceland	–1.9	0.9	–2.9	–0.1	...	...
Ireland	0.5	0.3	0.3	–0.8	61 830	73 905
Israel	0.7	2.0	–1.9	–0.3	26 782	35 546
Italy	–0.0	0.7	–0.1	0.7	47 320	50 568
Japan	...	...	–0.9	–1.1	56 271	58 069
Malta	3.3	0.2	2.3	–0.3	26 064	41 172
Netherlands	0.8	–1.0	0.1	–1.5	76 440	80 364
New Zealand	0.9	2.3	–0.1	1.4	54 573	73 598
Norway	–0.3	0.0	–0.8	–0.5	37 680	41 207
Portugal	2.9	0.5	3.0	0.4	21 420	26 829
Spain	–0.4	3.0	–0.7	2.7	22 671	30 400
Sweden	–1.0	0.3	–1.5	0.2	43 363	48 346
Switzerland	–0.1	–0.1	–1.0	–0.1	62 202	61 504
United Kingdom	0.2	–0.8	–0.1	–1.1	66 176	70 969
United States of America	1.0	1.8	–0.0	0.7	48 361	64 438
COUNTRIES IN TRANSITION	**–4.0**	**0.7**	**–5.0**	**0.6**	**25 637**	**30 921**
Albania	2.7	0.8	1.8	0.5	26 625	34 912
Armenia	0.1	1.8	3.2	3.6	16 626	19 779
Azerbaijan	–11.0	5.3	–14.3	3.7	15 862	26 067
Belarus	–4.5	0.7	–10.5	1.8	23 774	28 875
Bosnia and Herzegovina	–8.8	3.5	–6.2	0.5	35 688	33 933
Bulgaria	–3.9	0.6	–1.4	–0.4	27 935	32 554
Croatia	0.3	1.0	–1.3	0.6	42 555	41 787
Czech Republic	–4.6	–0.7	–20.6	0.1	40 992	48 159

TABLE A3 *(cont.)*

	Crop and livestock production		Per capita food production		Cereal yields	
	(Average annual rate of growth [%])				*(hg/ha)*	
	1986–1995	1996–2005	1986–1995	1996–2005	1993–1995	2003–2005
Estonia	–9.7	–0.1	–9.8	–0.4	18 152	23 344
Georgia	3.8	–0.3	–0.1	0.1	19 781	21 236
Hungary	–3.5	1.7	–2.3	2.8	37 062	47 179
Kazakhstan	–16.2	3.4	–14.6	3.5	8 029	9 939
Kyrgyzstan	–8.3	3.5	–5.0	2.7	19 684	28 382
Latvia	–14.9	0.4	–18.4	0.1	17 779	22 257
Lithuania	–8.5	–1.2	–16.3	1.4	19 068	31 371
Macedonia, The former Yugoslav Republic of	–2.9	1.3	–5.4	1.0	25 713	30 528
Moldova	0.1	–0.3	–6.7	–1.9	30 012	26 426
Poland	–1.8	–0.9	–1.6	0.5	27 805	31 912
Romania	–1.4	1.4	–0.5	0.7	27 602	32 552
Russian Federation	–7.9	0.8	–9.8	1.8	14 390	18 504
Serbia and Montenegro	3.2	0.3	–1.5	0.5	33 852	40 556
Slovakia	–3.0	–0.9	–3.6	0.5	40 665	41 103
Slovenia	6.4	0.3	10.6	1.2	44 333	52 474
Tajikistan	–7.6	5.5	–6.4	2.5	9 943	21 972
Turkmenistan	4.0	9.0	16.4	1.0	22 150	28 826
Ukraine	–5.3	1.2	–10.4	0.4	28 813	24 349
Uzbekistan	0.2	2.4	–0.2	–0.5	17 304	35 902

TABLE A4
Population and labour force indicators (2004)

	Total population	Rural population		Agricultural population		Economically active population	Economically active population in agriculture	
	(Thousands)	*(Thousands)*	*(% of total)*	*(Thousands)*	*(% of total)*	*(Thousands)*	*(Thousands)*	*(%)*
WORLD	**6 348 718**	**3 251 553**	**51**	**2 583 457**	**41**	**3 115 545**	**1 340 477**	**43**
DEVELOPED COUNTRIES	**1 287 488**	**348 383**	**27**	**82 592**	**6**	**647 744**	**41 351**	**6**
DEVELOPING COUNTRIES	**5 061 230**	**2 903 170**	**57**	**2 500 865**	**49**	**2 467 801**	**1 299 126**	**53**
ASIA AND THE PACIFIC	**3 389 568**	**2 163 043**	**64**	**1 872 682**	**55**	**1 751 051**	**1 018 370**	**58**
American Samoa	63	6	10	20	32	25	8	32
Bangladesh	149 664	112 836	75	77 454	52	76 756	39 723	52
Bhutan	2 325	2 121	91	2 176	94	1 127	1 055	94
Brunei Darussalam	366	85	23	2	1	175	1	1
Cambodia	14 482	11 694	81	9 922	69	7 300	5 001	69
China	1 320 892	794 634	60	849 417	64	792 611	510 010	64
Cook Islands	18	5	28	6	33	7	2	29
Fiji	847	401	47	322	38	354	134	38
French Polynesia	248	119	48	78	31	109	34	31
Guam	165	10	6	46	28	80	21	26
India	1 081 229	772 785	71	559 656	52	478 801	276 687	58
Indonesia	222 611	118 394	53	92 276	41	110 673	50 531	46
Kiribati	89	46	52	23	26	39	10	26
Korea, Democratic People's Republic of	22 776	8 793	39	6 206	27	11 751	3 202	27
Korea, Republic of	47 951	9 440	20	3 255	7	25 169	1 944	8
Lao People's Democratic Republic	5 787	4 565	79	4 385	76	2 933	2 223	76
Malaysia	24 876	8 724	35	3 739	15	10 935	1 740	16
Maldives	328	232	71	77	23	141	27	19
Marshall Islands	54	18	33	14	26	24	6	25
Micronesia, Federated States of	110	78	71	28	25	47	12	26
Mongolia	2 630	1 146	44	567	22	1 405	303	22
Myanmar	50 101	35 076	70	34 543	69	27 408	18 897	69
Nauru	13	0	0	3	23	6	1	17
Nepal	25 725	21 733	84	23 872	93	12 306	11 419	93
New Caledonia	233	90	39	79	34	124	42	34
Niue	2	1	50	1	50	1	0	0
Northern Mariana Islands	83	5	6	21	25	36	9	25
Pakistan	157 315	103 181	66	76 917	49	59 145	26 682	45
Palau	21	7	33	5	24	9	2	22
Papua New Guinea	5 836	5 063	87	4 387	75	2 803	2 019	72
Philippines	81 408	31 091	38	30 078	37	34 860	12 942	37
Samoa	180	140	78	56	31	65	20	31
Singapore	4 315	0	0	5	0	2 149	2	0
Solomon Islands	491	408	83	352	72	253	181	72
Sri Lanka	19 218	15 178	79	8 668	45	8 910	3 948	44
Thailand	63 465	43 080	68	29 060	46	37 873	20 185	53
Timor-Leste	820	760	93	666	81	447	363	81
Tokelau	2	2	100	0	0	1	0	0
Tonga	105	70	67	33	31	39	12	31
Tuvalu	11	5	45	3	27	4	1	25

TABLE A4 *(cont.)*

	Total population	Rural population		Agricultural population		Economically active population	Economically active population in agriculture	
	(Thousands)	*(Thousands)*	*(% of total)*	*(Thousands)*	*(% of total)*	*(Thousands)*	*(Thousands)*	*(%)*
Vanuatu	217	167	77	74	34	97	33	34
Viet Nam	82 481	60 839	74	54 185	66	44 047	28 936	66
Wallis and Futuna Islands	15	15	100	5	33	6	2	33
LATIN AMERICA AND THE CARIBBEAN	**550 888**	**125 747**	**23**	**103 991**	**19**	**240 486**	**43 060**	**18**
Anguilla	12	0	0	3	25	6	1	17
Antigua and Barbuda	73	45	62	16	22	34	7	21
Argentina	38 871	3 755	10	3 585	9	16 381	1 455	9
Aruba	101	55	54	22	22	47	10	21
Bahamas	317	32	10	10	3	165	5	3
Barbados	271	129	48	10	4	152	5	3
Belize	261	135	52	77	30	94	28	30
Bermuda	82	0	0	2	2	42	1	2
Bolivia	8 973	3 244	36	3 762	42	3 755	1 619	43
Brazil	180 654	29 643	16	25 869	14	83 594	12 134	15
British Virgin Islands	21	8	38	5	24	10	2	20
Cayman Islands	42	0	0	9	21	19	4	21
Chile	15 996	2 023	13	2 359	15	6 755	989	15
Colombia	44 914	10 359	23	8 386	19	20 020	3 666	18
Costa Rica	4 250	1 646	39	803	19	1 799	327	18
Cuba	11 328	2 756	24	1 679	15	5 688	727	13
Dominica	79	21	27	17	22	36	8	22
Dominican Republic	8 872	3 571	40	1 337	15	3 956	561	14
Ecuador	13 192	4 983	38	3 270	25	5 347	1 242	23
El Salvador	6 614	2 629	40	1 999	30	2 953	782	26
Falkland Islands (Malvinas)	3	0	0	0	0	1	0	0
French Guiana	182	45	25	30	16	78	13	17
Grenada	80	47	59	18	23	37	8	22
Guadeloupe	443	3	1	11	2	206	5	2
Guatemala	12 661	6 740	53	6 006	47	4 792	2 089	44
Guyana	767	475	62	125	16	332	54	16
Haiti	8 437	5 226	62	5 070	60	3 710	2 232	60
Honduras	7 099	3 832	54	2 204	31	2 798	789	28
Jamaica	2 676	1 280	48	512	19	1 364	261	19
Martinique	395	17	4	13	3	188	6	3
Mexico	104 931	25 503	24	22 164	21	44 096	8 453	19
Montserrat	4	3	75	1	25	2	0	0
Netherlands Antilles	223	67	30	1	0	101	0	0
Nicaragua	5 597	2 363	42	1 003	18	2 285	392	17
Panama	3 177	1 353	43	665	21	1 353	248	18
Paraguay	6 018	2 539	42	2 314	38	2 323	756	33
Peru	27 567	7 098	26	7 767	28	10 818	3 074	28
Puerto Rico	3 898	81	2	89	2	1 476	26	2
Saint Kitts and Nevis	42	28	67	9	21	19	4	21

TABLE A4 *(cont.)*

	Total population	Rural population		Agricultural population		Economically active population	Economically active population in agriculture	
	(Thousands)	*(Thousands)*	*(% of total)*	*(Thousands)*	*(% of total)*	*(Thousands)*	*(Thousands)*	*(%)*
Saint Lucia	150	104	69	33	22	69	15	22
Saint Pierre and Miquelon	6	1	17	0	0	3	0	0
Saint Vincent and the Grenadines	121	49	40	27	22	54	12	22
Suriname	439	103	23	80	18	172	31	18
Trinidad and Tobago	1 307	315	24	103	8	607	48	8
Turks and Caicos Islands	21	11	52	5	24	10	2	20
United States Virgin Islands	112	7	6	24	21	52	11	21
Uruguay	3 439	248	7	368	11	1 564	189	12
Venezuela, Bolivarin Republic of	26 170	3 175	12	2 129	8	11 123	769	7
NEAR EAST AND NORTH AFRICA	**404 297**	**159 062**	**39**	**103 222**	**26**	**157 351**	**44 822**	**28**
Algeria	32 339	13 160	41	7 406	23	12 033	2 800	23
Bahrain	739	71	10	6	1	352	3	1
Cyprus	808	248	31	58	7	403	29	7
Egypt	73 390	42 488	58	24 954	34	27 902	8 594	31
Iran, Islamic Republic of	69 788	22 785	33	17 157	25	26 727	6 602	25
Iraq	25 856	8 500	33	2 152	8	7 318	609	8
Jordan	5 614	1 158	21	567	10	1 933	195	10
Kuwait	2 595	103	4	27	1	1 391	15	1
Lebanon	3 708	439	12	105	3	1 412	40	3
Libyan Arab Jamahiriya	5 659	756	13	263	5	2 020	94	5
Morocco	31 064	13 026	42	10 408	34	12 979	4 296	33
Oman	2 935	648	22	983	33	1 082	362	33
Qatar	619	49	8	6	1	341	3	1
Saudi Arabia	24 919	3 030	12	1 844	7	8 554	633	7
Syrian Arab Republic	18 223	9 078	50	4 771	26	6 250	1 636	26
Tunisia	9 937	3 586	36	2 299	23	4 211	974	23
Turkey	72 320	24 133	33	20 484	28	34 269	14 854	43
United Arab Emirates	3 051	449	15	122	4	1 667	67	4
Yemen	20 733	15 355	74	9 610	46	6 507	3 016	46
SUB-SAHARAN AFRICA	**716 477**	**455 318**	**64**	**420 970**	**59**	**318 913**	**192 874**	**60**
Angola	14 078	8 956	64	9 962	71	6 390	4 521	71
Benin	6 918	3 782	55	3 463	50	3 163	1 583	50
Botswana	1 795	867	48	783	44	808	352	44
Burkina Faso	13 393	10 962	82	12 345	92	6 235	5 747	92
Burundi	7 068	6 349	90	6 341	90	3 739	3 355	90
Cameroon	16 296	7 789	48	7 807	48	6 807	3 728	55
Cape Verde	473	205	43	96	20	196	40	20
Central African Republic	3 912	2 213	57	2 705	69	1 827	1 264	69
Chad	8 854	6 612	75	6 319	71	4 021	2 870	71
Comoros	790	509	64	568	72	376	270	72
Congo	3 818	1 749	46	1 425	37	1 544	576	37
Congo, Democratic Republic of the	54 417	36 988	68	33 355	61	22 644	13 880	61

TABLE A4 *(cont.)*

	Total population	Rural population		Agricultural population		Economically active population	Economically active population in agriculture	
	(Thousands)	*(Thousands)*	*(% of total)*	*(Thousands)*	*(% of total)*	*(Thousands)*	*(Thousands)*	*(%)*
Côte d'Ivoire	16 897	9 243	55	7 571	45	6 934	3 107	45
Djibouti	712	114	16	547	77	354	272	77
Equatorial Guinea	507	258	51	348	69	209	143	68
Eritrea	4 297	3 426	80	3 278	76	2 101	1 603	76
Ethiopia	72 420	60 926	84	58 408	81	31 683	25 553	81
Gabon	1 351	205	15	444	33	611	201	33
Gambia	1 462	1 080	74	1 137	78	743	577	78
Ghana	21 377	11 550	54	11 801	55	10 773	6 021	56
Guinea	8 620	5 523	64	7 095	82	4 248	3 497	82
Guinea-Bissau	1 538	1 003	65	1 257	82	660	540	82
Kenya	32 420	19 257	59	23 873	74	17 070	12 570	74
Lesotho	1 800	1 474	82	691	38	721	277	38
Liberia	3 487	1 824	52	2 284	66	1 318	863	65
Madagascar	17 901	13 119	73	12 974	72	8 582	6 220	72
Malawi	12 337	10 283	83	9 327	76	5 876	4 777	81
Mali	13 409	8 989	67	10 549	79	6 253	4 920	79
Mauritania	2 980	1 105	37	1 546	52	1 329	689	52
Mauritius	1 233	694	56	124	10	546	56	10
Mozambique	19 182	12 088	63	14 538	76	10 041	8 065	80
Namibia	2 011	1 348	67	921	46	801	306	38
Niger	12 415	9 597	77	10 782	87	5 675	4 928	87
Nigeria	127 117	66 717	52	37 827	30	50 940	15 159	30
Réunion	767	64	8	19	2	323	8	2
Rwanda	8 481	6 781	80	7 644	90	4 512	4 067	90
Saint Helena	5	3	60	3	60	2	1	50
Sao Tome and Principe	165	102	62	102	62	76	47	62
Senegal	10 339	5 136	50	7 488	72	4 652	3 369	72
Seychelles	82	41	50	63	77	39	30	77
Sierra Leone	5 168	3 166	61	3 103	60	1 920	1 153	60
Somalia	10 312	6 681	65	7 150	69	4 368	3 028	69
South Africa	45 214	19 153	42	5 621	12	18 897	1 570	8
Sudan	34 333	20 654	60	19 708	57	13 806	7 925	57
Swaziland	1 083	827	76	343	32	376	119	32
Tanzania, United Republic of	37 671	23 907	63	28 729	76	19 337	15 214	79
Togo	5 017	3 218	64	2 873	57	2 142	1 227	57
Uganda	26 699	23 414	88	20 533	77	12 743	9 953	78
Zambia	10 924	7 008	64	7 313	67	4 597	3 078	67
Zimbabwe	12 932	8 359	65	7 787	60	5 905	3 555	60
DEVELOPED MARKET ECONOMIES	**880 421**	**196 056**	**22**	**26 396**	**3**	**436 565**	**12 761**	**3**
Andorra	73	7	10	6	8	33	3	9
Australia	19 913	1 484	7	853	4	10 174	436	4
Austria	8 120	2 778	34	352	4	3 745	162	4
Belgium–Luxembourg	10 799	322	3	172	2	4 405	70	2

TABLE A4 *(cont.)*

	Total population	Rural population		Agricultural population		Economically active population	Economically active population in agriculture	
	(Thousands)	*(Thousands)*	*(% of total)*	*(Thousands)*	*(% of total)*	*(Thousands)*	*(Thousands)*	*(%)*
Canada	31 744	6 098	19	710	2	17 126	353	2
Denmark	5 375	781	15	174	3	2 891	93	3
Faeroe Islands	47	29	62	1	2	24	1	4
Finland	5 215	2 043	39	262	5	2 553	118	5
France	60 434	14 248	24	1 659	3	27 136	745	3
Germany	82 526	9 712	12	1 724	2	40 242	841	2
Gibraltar	27	0	0	2	7	12	1	8
Greece	10 977	4 243	39	1 285	12	4 827	707	15
Greenland	57	10	18	1	2	29	1	3
Iceland	292	20	7	22	8	166	12	7
Ireland	3 999	1 587	40	354	9	1 730	153	9
Israel	6 560	526	8	150	2	2 879	66	2
Italy	57 346	18 614	32	2 505	4	25 165	1 099	4
Japan	127 800	44 129	35	3 895	3	68 111	2 172	3
Liechtenstein	34	26	76	1	3	16	0	0
Malta	396	32	8	5	1	151	2	1
Monaco	35	0	0	1	3	16	0	0
Netherlands	16 227	5 458	34	485	3	7 397	221	3
New Zealand	3 904	545	14	325	8	1 952	167	9
Norway	4 552	940	21	205	5	2 348	95	4
Portugal	10 072	4 551	45	1 262	13	5 121	570	11
San Marino	28	3	11	2	7	13	1	8
Spain	41 128	9 627	23	2 472	6	18 405	1 113	6
Sweden	8 886	1 481	17	275	3	4 772	131	3
Switzerland	7 164	2 350	33	422	6	3 795	143	4
United Kingdom	59 648	6 565	11	986	2	29 856	494	2
United States of America	297 043	57 847	19	5 828	2	151 475	2 791	2
COUNTRIES IN TRANSITION	**407 067**	**152 327**	**37**	**56 196**	**14**	**211 179**	**28 590**	**14**
Albania	3 194	1 790	56	1 457	46	1 633	745	46
Armenia	3 052	1 116	37	348	11	1 645	188	11
Azerbaijan	8 447	4 237	50	2 118	25	3 905	979	25
Belarus	9 852	2 851	29	1 113	11	5 364	606	11
Bosnia and Herzegovina	4 186	2 307	55	156	4	1 972	73	4
Bulgaria	7 829	2 338	30	458	6	4 067	222	5
Croatia	4 416	1 810	41	287	6	2 065	134	6
Czech Republic	10 226	2 630	26	742	7	5 697	413	7
Estonia	1 308	407	31	134	10	720	74	10
Georgia	5 074	2 452	48	905	18	2 626	468	18
Hungary	9 831	3 403	35	1 028	10	4 702	437	9
Kazakhstan	15 403	6 901	45	2 773	18	7 749	1 246	16
Kyrgyzstan	5 208	3 455	66	1 220	23	2 388	559	23
Latvia	2 286	794	35	245	11	1 264	135	11
Lithuania	3 422	1 153	34	430	13	1 766	183	10

TABLE A4 *(cont.)*

	Total population	Rural population		Agricultural population		Economically active population	Economically active population in agriculture	
	(Thousands)	*(Thousands)*	*(% of total)*	*(Thousands)*	*(% of total)*	*(Thousands)*	*(Thousands)*	*(%)*
Macedonia,The former Yugoslav Republic of	2 066	838	41	213	10	960	99	10
Moldova	4 263	2 310	54	835	20	2 234	438	20
Poland	38 551	14 677	38	6 609	17	20 279	3 988	20
Romania	22 280	10 169	46	2 534	11	10 747	1 338	12
Russian Federation	142 397	38 250	27	13 453	9	78 053	7 374	9
Serbia and Montenegro	10 519	5 045	48	1 768	17	5 102	857	17
Slovakia	5 407	2 299	43	438	8	3 004	244	8
Slovenia	1 982	975	49	25	1	1 009	13	1
Tajikistan	6 298	4 770	76	1 961	31	2 671	832	31
Turkmenistan	4 940	2 688	54	1 572	32	2 289	728	32
Ukraine	48 151	15 845	33	6 748	14	25 162	3 188	13
Uzbekistan	26 479	16 817	64	6 626	25	12 106	3 029	25

TABLE A5
Land use

	Total land area	Forest and wood area	Agricultural area	Agricultural area per capita	Arable land	Permanent crops	Permanent pasture	Irrigated area	Fertilizer consumption
	(Thousand ha)			(ha/person)	(% of agricultural area)			(% of arable + permanent crops area)	(kg/ha arable land)
	2003	2005	2003	2003	2003	2003	2003	2003	2002
WORLD	**12 912 305**	**3 949 976**	**4 930 277**	**0.78**	**28.4**	**2.8**	**68.7**	**17.8**	**101.4**
DEVELOPED COUNTRIES	**5 319 913**	**1 827 613**	**1 715 217**	**1.33**	**34.5**	**1.7**	**63.8**	**10.9**	**82.9**
DEVELOPING COUNTRIES	**7 592 392**	**2 122 363**	**3 215 060**	**0.63**	**25.2**	**3.4**	**71.4**	**22.4**	**115.2**
ASIA AND THE PACIFIC	**2 014 249**	**537 311**	**1 027 299**	**0.30**	**39.4**	**5.5**	**55.2**	**33.5**	**173.7**
American Samoa	20	18	5	0.08	40.0	60.0	0.0	0.0	...
Bangladesh	13 017	871	9 019	0.06	88.4	4.9	6.7	56.1	178.5
Bhutan	4 700	3 195	543	0.23	19.9	3.7	76.4	31.3	...
Brunei Darussalam	527	278	23	0.06	52.2	21.7	26.1	5.9	...
Cambodia	17 652	10 447	5 307	0.37	69.7	2.0	28.3	7.1	...
China	932 743	197 290	554 851	0.42	25.7	2.2	72.1	35.3	277.7
Cook Islands	24	16	6	0.33	66.7	33.3	0.0	0.0	0.0
Fiji	1 827	1 000	460	0.54	43.5	18.5	38.0	1.1	61.5
French Polynesia	366	105	45	0.18	6.7	48.9	44.4	4.0	434.7
Guam	55	26	20	0.12	10.0	50.0	40.0	0.0	...
India	297 319	67 701	180 804	0.17	88.8	5.1	6.1	32.9	100.4
Indonesia	181 157	88 495	45 577	0.20	46.1	29.4	24.5	13.1	142.5
Kiribati	73	2	37	0.42	5.4	94.6	0.0	0.0	...
Korea, Democratic People's Rep. of	12 041	6 187	2 950	0.13	91.5	6.8	1.7	50.3	98.6
Korea, Republic of	9 873	6 265	1 902	0.04	86.5	10.5	2.9	47.6	419.1
Lao People's Dem. Rep.	23 080	16 142	1 909	0.33	49.8	4.2	46.0	17.0	7.4
Malaysia	32 855	20 890	7 870	0.32	22.9	73.5	3.6	4.8	683.3
Maldives	30	1	14	0.04	28.6	64.3	7.1	0.0	...
Marshall Islands	18	...	14	0.26	14.3	57.1	28.6	0.0	...
Micronesia, Federated States of	70	63	47	0.43	8.5	68.1	23.4	0.0	...
Mongolia	156 650	10 252	130 500	49.62	0.9	0.0	99.1	7.0	3.7
Myanmar	65 755	32 222	11 293	0.23	89.4	7.9	2.8	17.0	13.1
Nauru	2	0	0	0.00	...	...	...	...	...
Nepal	14 300	3 636	4 225	0.16	56.0	3.0	41.1	47.0	37.6
New Caledonia	1 828	717	249	1.07	2.4	1.6	96.0	100.0	150.0
Niue	26	14	8	4.00	37.5	50.0	12.5	0.0	...
Norfolk Island	4	...	1	...	0.0	0.0	100.0	...	...
Pakistan	77 088	1 902	25 130	0.16	77.4	2.7	19.9	90.6	152.3
Papua New Guinea	45 286	29 437	1 050	0.18	21.4	61.9	16.7	0.0	52.4
Philippines	29 817	7 162	12 200	0.15	46.7	41.0	12.3	14.5	126.8
Samoa	283	171	131	0.73	45.8	52.7	1.5	0.0	58.3
Singapore	67	2	2	0.00	50.0	50.0	0.0	0.0	2 418.0

TABLE A5 *(cont.)*

	Total land area	Forest and wood area	Agricultural area	Agricultural area per capita	Arable land	Permanent crops	Permanent pasture	Irrigated area	Fertilizer consumption
	(Thousand ha)			*(ha/person)*	*(% of agricultural area)*			*(% of arable + permanent crops area)*	*(kg/ha arable land)*
	2003	2005	2003	2003	2003	2003	2003	2003	2002
Solomon Islands	2 799	2 172	117	0.24	15.4	50.4	34.2	0.0	...
Sri Lanka	6 463	1 933	2 356	0.12	38.9	42.4	18.7	38.8	310.3
Thailand	51 089	14 520	18 487	0.29	76.4	19.2	4.3	28.2	120.3
Timor-Leste	1 487	798	340	0.41	35.9	20.0	44.1	0.0	...
Tokelau	1	0	0	0.00	...	...	...	...	...
Tonga	72	4	30	0.29	50.0	36.7	13.3	0.0	...
Tuvalu	3	1	2	0.18	0.0	100.0	0.0	0.0	...
Vanuatu	1 219	440	147	0.68	13.6	57.8	28.6	0.0	...
Viet Nam	32 549	12 931	9 622	0.12	69.4	23.9	6.7	33.4	295.7
Wallis and Futuna Islands	14	5	6	0.40	16.7	83.3	0.0	0.0	...
LATIN AMERICA AND THE CARIBBEAN	**2 017 994**	**924 127**	**726 124**	**1.32**	**19.7**	**2.7**	**77.5**	**11.4**	**92.4**
Antigua and Barbuda	44	9	14	0.19	57.1	14.3	28.6	0.0	...
Argentina	273 669	33 021	128 747	3.31	21.7	0.8	77.6	5.4	26.5
Aruba	19	...	2	0.02	100.0	0.0	0.0	0.0	...
Bahamas	1 001	515	14	0.04	57.1	28.6	14.3	8.3	100.0
Barbados	43	2	19	0.07	84.2	5.3	10.5	29.4	50.7
Belize	2 281	1 653	152	0.58	46.1	21.1	32.9	2.9	67.1
Bermuda	5	1	1	0.01	100.0	0.0	0.0	0.0	100.0
Bolivia	108 438	58 740	37 087	4.13	8.2	0.6	91.2	4.1	4.5
Brazil	845 942	477 698	263 600	1.46	22.4	2.9	74.7	4.4	130.2
Chile	74 880	16 121	15 242	0.95	13.0	2.1	84.9	82.4	229.6
Colombia	103 870	60 728	45 911	1.02	5.0	3.4	91.6	23.4	301.6
Costa Rica	5 106	2 391	2 865	0.67	7.9	10.5	81.7	20.6	673.6
Cuba	10 982	2 713	6 655	0.59	46.0	10.9	43.1	23.0	39.8
Dominica	75	46	23	0.29	21.7	69.6	8.7	0.0	108.6
Dominican Republic	4 838	1 376	3 696	0.42	29.7	13.5	56.8	17.2	81.8
Ecuador	27 684	10 853	8 075	0.61	20.1	16.9	63.0	29.0	141.7
El Salvador	2 072	298	1 704	0.26	38.7	14.7	46.6	4.9	83.8
Falkland Islands (Malvinas)	1 217	0	1 130	376.67	0.0	0.0	100.0	...	...
French Guiana	8 815	8 063	23	0.13	52.2	17.4	30.4	12.5	100.0
Grenada	34	4	13	0.16	15.4	76.9	7.7	0.0	...
Guadeloupe	169	80	46	0.10	43.5	10.9	45.7	24.0	925.0
Guatemala	10 843	3 938	4 652	0.37	31.0	13.1	55.9	6.3	129.3
Guyana	19 685	15 104	1 740	2.27	27.6	1.7	70.7	29.4	37.2
Haiti	2 756	105	1 590	0.19	49.1	20.1	30.8	8.4	17.9
Honduras	11 189	4 648	2 936	0.41	36.4	12.3	51.4	5.6	47.0
Jamaica	1 083	339	513	0.19	33.9	21.4	44.6	0.0	128.7
Martinique	106	46	32	0.08	31.3	34.4	34.4	33.3	1 770.0
Mexico	190 869	64 238	107 300	1.02	23.1	2.3	74.6	23.2	69.0

TABLE A5 *(cont.)*

	Total land area	Forest and wood area	Agricultural area	Agricultural area per capita	Arable land	Permanent crops	Permanent pasture	Irrigated area	Fertilizer consumption
	(Thousand ha)			*(ha/person)*	*(% of agricultural area)*			*(% of arable + permanent crops area)*	*(kg/ha arable land)*
	2003	2005	2003	2003	2003	2003	2003	2003	2002
Netherlands Antilles	80	1	8	0.04	100.0	0.0	0.0	0.0	...
Nicaragua	12 140	5 189	6 976	1.25	27.6	3.4	69.0	2.8	27.9
Panama	7 443	4 294	2 230	0.70	24.6	6.6	68.8	6.2	52.4
Paraguay	39 730	18 475	24 836	4.13	12.2	0.4	87.4	2.1	50.4
Peru	128 000	68 742	21 210	0.77	17.4	2.9	79.7	27.8	74.1
Puerto Rico	887	408	218	0.06	15.1	22.9	61.9	48.2	...
Saint Kitts and Nevis	36	5	10	0.24	70.0	10.0	20.0	0.0	242.9
Saint Lucia	61	17	20	0.13	20.0	70.0	10.0	16.7	335.8
Saint Vincent and the Grenadines	39	11	16	0.13	43.8	43.8	12.5	7.1	304.7
Suriname	15 600	14 776	89	0.20	65.2	11.2	23.6	75.0	96.6
Trinidad and Tobago	513	226	133	0.10	56.4	35.3	8.3	3.3	43.4
Turks and Caicos Islands	43	34	1	0.05	100.0	0.0	0.0	0.0	...
Uruguay	17 502	1 506	14 955	4.35	9.2	0.3	90.6	14.9	94.1
Venezuela, Bolivarian Republic of	88 205	47 713	21 640	0.83	12.0	3.7	84.3	16.9	115.4
NEAR EAST AND NORTH AFRICA	**1 263 148**	**35 380**	**457 610**	**1.04**	**18.0**	**2.7**	**79.3**	**27.2**	**79.1**
Afghanistan	65 209	867	38 048	...	...	...	...	...	...
Algeria	238 174	2 277	39 956	1.24	18.9	1.7	79.4	6.9	13.0
Bahrain	71	...	10	0.01	20.0	40.0	40.0	66.7	50.0
Cyprus	924	174	144	0.18	69.4	27.8	2.8	28.6	154.1
Egypt	99 545	67	3 424	0.05	85.3	14.7	0.0	99.9	434.2
Iran, Islamic Republic of	163 620	11 075	62 248	0.89	25.9	3.4	70.7	41.9	80.1
Iraq	43 737	822	10 019	0.39	...	...	...	...	...
Jordan	8 824	83	1 142	0.20	25.8	9.2	65.0	18.8	113.6
Kuwait	1 782	6	154	0.06	9.7	1.9	88.3	72.2	70.0
Lebanon	1 023	136	329	0.09	51.7	43.5	4.9	33.2	231.9
Libyan Arab Jamahiriya	175 954	217	15 450	2.73	11.7	2.2	86.1	21.9	34.1
Morocco	44 630	4 364	30 376	0.98	27.9	2.9	69.1	15.4	47.0
Occupied Palestinian Territory	602	9	345	...	22.9	33.6	43.5	7.7	...
Oman	30 950	2	1 080	0.37	3.4	4.0	92.6	90.0	330.6
Qatar	1 100	...	71	0.11	25.4	4.2	70.4	0.0	...
Saudi Arabia	214 969	2 728	173 798	6.97	2.1	0.1	97.8	42.7	105.9
Syrian Arab Republic	18 378	461	13 759	0.76	33.4	6.0	60.6	24.6	70.3
Tunisia	15 536	1 056	9 784	0.98	28.5	21.9	49.6	8.0	36.6
Turkey	76 963	10 175	39 180	0.54	59.6	6.8	33.6	20.0	74.6

TABLE A5 *(cont.)*

	Total land area	Forest and wood area	Agricultural area	Agricultural area per capita	Arable land	Permanent crops	Permanent pasture	Irrigated area	Fertilizer consumption
	(Thousand ha)			*(ha/person)*	*(% of agricultural area)*			*(% of arable + permanent crops area)*	*(kg/ha arable land)*
	2003	2005	2003	2003	2003	2003	2003	2003	2002
United Arab Emirates	8 360	312	559	0.18	11.4	34.0	54.6	29.9	546.9
Yemen	52 797	549	17 734	0.86	8.7	0.7	90.6	33.0	7.5
SUB-SAHARAN AFRICA	**2 362 210**	**626 412**	**1 042 075**	**1.45**	**17.5**	**2.1**	**80.3**	**3.5**	**13.4**
Angola	124 670	59 104	57 590	4.09	5.7	0.5	93.8	2.2	...
Benin	11 062	2 351	3 467	0.50	76.4	7.7	15.9	0.4	18.1
Botswana	56 673	11 943	25 980	14.47	1.5	0.0	98.5	0.3	12.2
Burkina Faso	27 360	6 794	10 900	0.81	44.4	0.6	55.0	0.5	0.3
Burundi	2 568	152	2 345	0.33	42.2	15.6	42.2	1.5	2.6
Cameroon	46 540	21 245	9 160	0.56	65.1	13.1	21.8	0.4	5.9
Cape Verde	403	84	74	0.16	62.2	4.1	33.8	6.1	4.8
Central African Republic	62 298	22 755	5 149	1.32	37.5	1.8	60.7	0.1	0.3
Chad	125 920	11 921	48 630	5.49	7.4	0.1	92.5	0.8	4.9
Comoros	223	5	147	0.19	54.4	35.4	10.2	0.0	3.8
Congo	34 150	22 471	10 547	2.76	4.7	0.5	94.8	0.4	0.5
Congo, Democratic Republic of the	226 705	133 610	22 800	0.42	29.4	4.8	65.8	0.1	1.6
Côte d'Ivoire	31 800	10 405	19 900	1.18	16.6	18.1	65.3	1.1	33.0
Djibouti	2 318	6	1 701	2.39	0.1	0.0	99.9	100.0	...
Equatorial Guinea	2 805	1 632	334	0.66	38.9	29.9	31.1	0.0	...
Eritrea	10 100	1 554	7 532	1.75	7.5	0.0	92.5	3.7	6.5
Ethiopia	100 000	13 000	31 769	0.44	34.8	2.2	63.0	2.5	13.6
Gabon	25 767	21 775	5 160	3.82	6.3	3.3	90.4	1.4	0.9
Gambia	1 000	471	779	0.53	40.4	0.6	58.9	0.6	2.5
Ghana	22 754	5 517	14 735	0.69	28.4	14.9	56.7	0.5	7.4
Guinea	24 572	6 724	12 450	1.44	8.8	5.2	85.9	5.4	2.9
Guinea-Bissau	2 812	2 072	1 630	1.06	18.4	15.3	66.3	4.5	8.0
Kenya	56 914	3 522	26 512	0.82	17.5	2.1	80.3	2.0	30.7
Lesotho	3 035	8	2 334	1.30	14.1	0.2	85.7	0.9	34.2
Liberia	9 632	3 154	2 602	0.75	14.7	8.5	76.9	0.5	...
Madagascar	58 154	12 838	27 550	1.54	10.7	2.2	87.1	30.6	3.1
Malawi	9 408	3 402	4 440	0.36	55.2	3.2	41.7	2.2	78.8
Mali	122 019	12 572	34 700	2.59	13.4	0.1	86.5	5.0	9.0
Mauritania	102 522	267	39 750	13.34	1.2	0.0	98.7	0.0	5.9
Mauritius	203	37	113	0.09	88.5	5.3	6.2	20.8	250.0
Mozambique	78 409	19 262	48 580	2.53	9.0	0.5	90.6	2.6	5.7
Namibia	82 329	7 661	38 820	19.30	2.1	0.0	97.9	1.0	0.4
Niger	126 670	1 266	38 500	3.10	37.6	0.0	62.3	0.5	0.3
Nigeria	91 077	11 089	72 600	0.57	42.0	4.0	54.0	0.8	5.4
Réunion	250	84	49	0.06	71.4	8.2	20.4	30.8	142.9
Rwanda	2 467	480	1 935	0.23	62.0	14.0	24.0	0.6	12.7

TABLE A5 *(cont.)*

	Total land area	Forest and wood area	Agricultural area	Agricultural area per capita	Arable land	Permanent crops	Permanent pasture	Irrigated area	Fertilizer consumption
	(Thousand ha)			*(ha/person)*	*(% of agricultural area)*			*(% of arable + permanent crops area)*	*(kg/ha arable land)*
	2003	2005	2003	2003	2003	2003	2003	2003	2002
Saint Helena	31	2	12	2.40	33.3	0.0	66.7	0.0	...
Sao Tome and Principe	96	27	56	0.34	14.3	83.9	1.8	18.2	...
Senegal	19 253	8 673	8 157	0.79	30.2	0.6	69.3	4.8	13.6
Seychelles	46	40	7	0.09	14.3	85.7	0.0	0.0	17.0
Sierra Leone	7 162	2 754	2 845	0.55	20.0	2.6	77.3	4.7	0.5
Somalia	62 734	7 131	44 071	4.27	...	...	...	...	...
South Africa	121 447	9 203	99 640	2.20	14.8	1.0	84.2	9.5	65.4
Sudan	237 600	67 546	134 600	3.92	12.6	0.3	87.1	10.7	4.1
Swaziland	1 720	541	1 392	1.29	12.8	1.0	86.2	26.0	39.3
Tanzania, United Republic of	88 359	35 257	48 100	1.28	8.3	2.3	89.4	3.6	1.8
Togo	5 439	386	3 630	0.72	69.1	3.3	27.5	0.3	6.8
Uganda	19 710	3 627	12 462	0.47	41.7	17.3	41.0	0.1	1.8
Zambia	74 339	42 452	35 289	3.23	14.9	0.1	85.0	2.9	12.4
Zimbabwe	38 685	17 540	20 550	1.59	15.7	0.6	83.7	5.2	34.2
DEVELOPED MARKET ECONOMIES	**3 057 790**	**941 966**	**1 084 752**	**1.23**	**32.0**	**2.1**	**65.9**	**11.4**	**119.0**
Australia	768 230	163 678	439 500	22.07	10.8	0.1	89.1	5.3	47.9
Austria	8 245	3 862	3 397	0.42	40.9	2.1	57.0	0.3	149.7
Belgium–Luxembourg	3 282	728	1 519	0.14	53.8	1.6	44.6	4.8	353.7
Canada	909 351	310 134	67 505	2.13	67.6	9.6	22.8	1.5	57.2
Denmark	4 243	500	2 658	0.49	85.3	0.3	14.4	19.7	131.1
Faeroe Islands	140	...	3	0.06	100.0	0.0	0.0	0.0	...
Finland	30 459	22 500	2 246	0.43	98.4	0.4	1.2	2.9	132.6
France	55 010	15 554	29 690	0.49	62.1	3.8	34.1	13.3	215.1
Germany	34 895	11 076	17 008	0.21	69.5	1.3	29.2	4.0	219.4
Gibraltar	1	0	0	0.00	...	...	...	...	...
Greece	12 890	3 752	8 431	0.77	32.0	13.4	54.6	37.9	150.1
Greenland	41 045	...	235	4.12	0.0	0.0	100.0	...	...
Iceland	10 025	46	2 281	7.81	0.3	0.0	99.7	0.0	2 555.4
Ireland	6 889	669	4 370	1.09	27.0	0.0	72.9	0.0	496.6
Israel	2 171	171	570	0.09	60.0	15.1	24.9	45.3	237.7
Italy	29 411	9 979	15 074	0.26	52.8	18.2	29.0	25.7	180.0
Japan	36 450	24 868	5 164	0.04	85.1	6.6	8.3	54.7	292.0
Liechtenstein	16	7	9	0.26	44.4	0.0	55.6	0.0	0.0
Malta	32	...	11	0.03	90.9	9.1	0.0	18.2	70.0
Netherlands	3 388	365	1 930	0.12	47.3	1.7	51.1	59.9	368.4
New Zealand	26 799	8 309	17 235	4.41	8.7	10.9	80.4	8.5	568.6
Norway	30 625	9 387	1 036	0.23	84.3	0.0	15.7	14.5	210.8
Portugal	9 150	3 783	3 748	0.37	42.4	19.2	38.3	28.1	130.2
Spain	49 921	17 915	30 185	0.73	45.5	16.5	38.0	20.2	157.2
Sweden	41 033	27 528	3 166	0.36	84.3	0.1	15.6	4.3	100.4

TABLE A5 *(cont.)*

	Total land area	Forest and wood area	Agricultural area	Agricultural area per capita	Arable land	Permanent crops	Permanent pasture	Irrigated area	Fertilizer consumption
	(Thousand ha)			*(ha/person)*	*(% of agricultural area)*			*(% of arable + permanent crops area)*	*(kg/ha arable land)*
	2003	2005	2003	2003	2003	2003	2003	2003	2002
Switzerland	4 000	1 221	1 525	0.21	26.8	1.6	71.6	5.8	227.5
United Kingdom	24 193	2 845	16 956	0.28	33.4	0.3	66.3	3.0	318.2
United States of America	915 896	303 089	409 300	1.38	42.4	0.5	57.1	12.8	111.3
COUNTRIES IN TRANSITION	**2 262 123**	**885 647**	**630 465**	**1.55**	**38.7**	**1.1**	**60.2**	**10.2**	**31.6**
Albania	2 740	794	1 121	0.35	51.6	10.8	37.6	50.5	61.2
Armenia	2 820	283	1 395	0.46	35.8	4.3	59.9	51.1	22.6
Azerbaijan	8 260	936	4 702	0.56	38.0	4.8	57.2	72.3	9.9
Belarus	20 748	7 894	8 885	0.90	62.5	1.4	36.1	2.3	134.6
Bosnia and Herzegovina	5 120	2 185	2 148	0.51	46.7	4.5	48.7	0.3	32.5
Bulgaria	11 063	3 625	5 326	0.68	62.4	4.0	33.6	16.6	49.9
Croatia	5 592	2 135	3 137	0.71	46.5	4.0	49.5	0.7	117.8
Czech Republic	7 727	2 648	4 270	0.42	71.7	5.6	22.7	0.7	120.5
Estonia	4 239	2 284	829	0.63	65.7	1.9	32.3	0.7	49.6
Georgia	6 949	2 760	3 006	0.59	26.7	8.8	64.5	44.0	35.4
Hungary	9 209	1 976	5 866	0.60	78.6	3.3	18.1	4.8	108.7
Kazakhstan	269 970	3 337	207 784	13.49	10.9	0.1	89.1	15.7	2.9
Kyrgyzstan	19 180	869	10 730	2.06	12.2	0.5	87.3	78.5	21.1
Latvia	6 205	2 941	2 471	1.08	73.7	1.2	25.1	1.1	27.5
Lithuania	6 268	2 099	3 484	1.02	84.0	1.7	14.3	0.2	66.3
Macedonia, The former Yugoslav Republic of	2 543	906	1 242	0.60	45.6	3.7	50.7	9.0	39.4
Moldova	3 287	329	2 528	0.59	73.0	11.8	15.2	14.0	5.5
Poland	30 624	9 192	16 169	0.42	77.8	1.9	20.2	0.8	120.1
Romania	22 995	6 370	14 717	0.66	64.0	3.1	32.9	31.2	34.6
Russian Federation	1 638 098	808 790	216 277	1.52	56.7	0.8	42.5	3.7	12.0
Serbia and Montenegro	10 200	2 694	5 595	0.53	60.6	5.8	33.6	0.9	90.8
Slovakia	4 808	1 929	2 438	0.45	58.8	5.4	35.8	11.7	86.8
Slovenia	2 014	1 264	510	0.26	33.9	5.7	60.4	1.5	404.0
Tajikistan	13 996	410	4 255	0.68	21.9	3.0	75.2	68.3	30.0
Turkmenistan	46 993	4 127	32 966	6.67	6.7	0.2	93.1	79.4	44.5
Ukraine	57 935	9 575	41 355	0.86	78.5	2.2	19.3	6.6	18.1
Uzbekistan	42 540	3 295	27 259	1.03	17.2	1.2	81.5	84.9	152.8

TABLE A6
Trade indicators

	Agricultural exports	Agricultural imports	Agricultural exports as share of total exports	Agricultural imports as share of total imports	Net food imports	Agricultural exports relative to agricultural GDP
	(Million $)	*(Million $)*	*(%)*	*(%)*	*(Thousand $)*	*(%)*
	2002–04	2002–04	2002–04	2002–04	2004	2002–04
WORLD	**523 820**	**549 289**	**7.1**	**7.3**	**19 140 980**	**37.6**
DEVELOPED COUNTRIES	**365 923**	**389 880**	**7.0**	**7.0**	**22 701 263**	**85.0**
DEVELOPING COUNTRIES	**157 897**	**159 410**	**7.4**	**8.1**	**–3 560 283**	**20.8**
ASIA AND THE PACIFIC	**65 847**	**75 637**	**5.1**	**5.8**	**3 214 792**	**13.1**
American Samoa	0	14	0.0	2.4	11 703	...
Bangladesh	106	1 740	1.5	16.8	1 250 500	1.0
Bhutan	13	23	8.8	7.9	11 236	7.8
Brunei Darussalam	2	218	0.0	16.2	147 112	...
Cambodia	44	152	1.9	5.6	51 788	3.1
China	16 228	24 152	3.6	5.7	–3 009 676	7.4
China, Hong Kong SAR	3 500	8 131	...	...	3 875 089	...
China, Macao SAR	48	372	...	...	176 239	...
Cook Islands	1	15	...	...	12 447	...
Fiji	193	156	29.8	13.2	–3 914	...
French Polynesia	19	254	...	...	230 029	...
Guam	0	41	0.3	...	27 222	...
India	6 361	4 677	10.5	6.2	–3 836 651	5.7
Indonesia	7 533	4 584	11.6	10.1	1 449 165	20.6
Kiribati	1	14	53.7	32.2	11 536	37.1
Korea, Democratic People's Republic of	22	354	2.0	17.1	292 414	0.1
Korea, Republic of	1 904	9 745	0.9	5.3	5 731 470	184.8
Lao People's Dem. Rep.	17	98	5.1	20.7	47 598	...
Malaysia	9 290	4 825	8.6	5.4	1 790 389	93.1
Maldives	0	99	0.2	19.7	91 918	...
Mongolia	81	138	12.2	16.6	111 475	29.6
Myanmar	427	351	16.2	15.9	–152 561	...
Nauru	0	2	...	...	1 224	...
Nepal	109	259	16.5	15.4	56 908	4.8
New Caledonia	3	178	...	...	158 561	...
Niue	0	1	...	...	327	...
Norfolk Island	1	3	...	...	1 329	...
Pakistan	1 159	1 850	9.9	13.1	–509 533	6.5
Papua New Guinea	346	204	16.2	14.7	–12 166	41.5
Philippines	1 838	2 889	4.9	7.3	1 426 926	14.9
Samoa	6	33	43.7	22.7	33 423	...
Singapore	2 751	4 070	1.7	2.9	1 238 562	2 736.0
Sri Lanka	1 042	855	20.1	12.4	–178 311	33.8
Thailand	10 126	3 445	12.4	4.4	–5 864 321	70.8
Timor-Leste	8	36	...	...	6 179	7.8
Tonga	13	22	82.1	22.7	6 380	31.3
Tuvalu	0	3	...	...	2 013	...
Vanuatu	14	18	49.8	17.1	10 462	...
Viet Nam	2 639	1 615	12.5	6.3	–1 479 699	29.5

TABLE A6 *(cont.)*

	Agricultural exports	Agricultural imports	Agricultural exports as share of total exports	Agricultural imports as share of total imports	Net food imports	Agricultural exports relative to agricultural GDP
	(Million $)	*(Million $)*	*(%)*	*(%)*	*(Thousand $)*	*(%)*
	2002–04	2002–04	2002–04	2002–04	2004	2002–04
LATIN AMERICA AND THE CARIBBEAN	**63 832**	**32 219**	**16.0**	**8.3**	**–27 232 608**	**53.2**
Antigua and Barbuda	1	30	1.8	7.1	21 262	...
Argentina	13 576	708	45.4	4.7	–9 925 666	105.6
Aruba	72	234	73.8	27.4	137 085	...
Bahamas	45	249	10.0	13.8	182 159	...
Barbados	71	169	27.5	14.1	61 252	...
Belize	117	70	59.3	13.1	–59 393	...
Bermuda	1	90	...	...	57 376	...
Bolivia	519	241	30.8	13.8	–253 074	47.2
Brazil	21 618	3 479	28.2	6.3	–15 507 155	47.9
British Virgin Islands	0	18	...	...	9 926	...
Cayman Islands	0	39	...	...	19 803	...
Chile	3 799	1 436	15.9	7.0	–1 756 952	91.2
Colombia	2 978	1 710	21.7	11.8	–1 124 991	29.5
Costa Rica	1 793	600	30.5	7.8	–1 190 320	130.9
Cuba	630	880	38.2	18.3	471 813	...
Dominica	15	29	36.8	22.2	8 174	...
Dominican Republic	605	797	11.1	9.8	183 240	27.9
Ecuador	1 887	646	29.8	9.3	–961 158	87.9
El Salvador	405	804	12.9	14.0	319 734	31.3
Falkland Islands (Malvinas)	8	0	...	...	125	...
Grenada	18	35	51.9	14.5	10 893	54.9
Guatemala	1 326	870	49.5	12.5	–391 800	23.2
Guyana	177	90	33.1	15.0	–106 991	89.2
Haiti	20	419	5.8	34.7	356 188	...
Honduras	637	556	45.7	16.4	–148 080	77.3
Jamaica	289	455	23.6	12.5	191 222	65.3
Mexico	8 833	12 411	5.2	6.6	1 941 361	37.8
Netherlands Antilles	12	177	0.9	6.7	96 055	...
Nicaragua	425	292	66.4	15.0	–224 698	59.2
Panama	288	495	32.5	15.4	108 070	30.9
Paraguay	947	237	74.4	10.4	–319 543	57.3
Peru	924	1 175	9.4	13.5	–50 899	16.2
Saint Kitts and Nevis	7	41	16.8	20.2	9 442	...
Saint Lucia	32	69	48.3	17.8	8 546	...
Saint Vincent and the Grenadines	27	40	71.6	19.9	10 266	92.2
Suriname	28	98	4.3	15.1	53 957	...
Trinidad and Tobago	193	368	3.7	8.9	242 908	165.1
Uruguay	1 275	322	54.6	13.3	–1 090 032	92.8
Venezuela, Bolivarian Republic of	234	1 840	0.8	14.1	1 377 287	...
NEAR EAST AND NORTH AFRICA	**13 384**	**37 291**	**3.4**	**11.6**	**19 549 702**	**13.8**
Afghanistan	60	389	17.7	18.0	204 672	...
Algeria	50	3 383	0.2	23.9	3 508 856	0.8

TABLE A6 *(cont.)*

	Agricultural exports	Agricultural imports	Agricultural exports as share of total exports	Agricultural imports as share of total imports	Net food imports	Agricultural exports relative to agricultural GDP
	(Million $)	*(Million $)*	*(%)*	*(%)*	*(Thousand $)*	*(%)*
	2002–04	**2002–04**	**2002–04**	**2002–04**	**2004**	**2002–04**
Bahrain	46	543	0.7	9.5	385 187	...
Cyprus	245	547	27.0	11.7	301 641	...
Egypt	1 008	3 064	16.3	25.3	1 449 214	8.0
Iran, Islamic Republic of	1 424	2 670	4.0	9.5	371 797	9.2
Iraq	58	1 746	0.4	12.8	1 386 997	3.6
Jordan	472	1 089	14.5	17.2	724 087	192.1
Kuwait	27	971	0.1	8.8	955 890	13.1
Lebanon	226	1 304	15.7	17.0	922 283	17.9
Libyan Arab Jamahiriya	12	961	0.1	19.1	955 748	...
Morocco	919	1 823	10.4	12.4	659 876	13.1
Occupied Palestinian Territory	55	509	...	...	405 943	...
Oman	505	1 191	4.2	16.7	671 231	115.5
Qatar	16	477	0.1	9.6	358 122	...
Saudi Arabia	436	5 886	0.4	15.5	5 247 688	4.5
Syrian Arab Republic	966	1 008	16.4	18.2	262 427	18.2
Tunisia	612	1 059	7.5	9.6	506 769	21.0
Turkey	4 755	3 970	9.7	5.5	–3 084 141	17.9
United Arab Emirates	1 451	4 106	2.2	7.9	2 722 525	56.4
Yemen	102	984	2.7	27.9	837 562	6.2
SUB-SAHARAN AFRICA	**14 834**	**14 263**	**12.4**	**12.5**	**907 831**	**20.3**
Angola	2	838	0.0	16.7	650 666	0.1
Benin	223	260	43.4	33.9	277 586	19.8
Botswana	57	258	1.8	9.8	36 697	32.5
Burkina Faso	265	139	78.8	14.9	54 229	21.1
Burundi	25	32	42.3	21.0	16 173	11.1
Cameroon	574	362	26.4	17.3	–65 987	10.8
Cape Verde	0	96	2.1	28.5	80 929	0.5
Central African Republic	22	26	16.6	19.4	8 504	3.4
Chad	110	68	10.9	6.4	3 930	12.5
Comoros	22	28	92.3	40.5	2 289	18.4
Congo	32	217	1.1	16.0	178 522	14.1
Congo, Democratic Republic of the	28	300	2.0	19.3	271 678	1.0
Côte d'Ivoire	3 136	575	52.4	17.5	–2 281 747	98.3
Djibouti	18	172	47.9	74.3	84 196	...
Equatorial Guinea	4	45	0.1	4.1	15 072	...
Eritrea	1	98	6.2	20.2	114 271	1.5
Ethiopia	393	407	71.2	17.9	90 190	11.6
Gabon	10	167	0.4	15.3	173 686	2.1
Gambia	20	102	199.5	57.3	112 174	19.0
Ghana	984	686	44.3	20.6	–583 773	35.5
Guinea	40	194	5.9	29.2	104 527	4.8
Guinea-Bissau	53	44	76.3	60.3	–29 819	37.0
Kenya	1 050	438	43.7	11.4	–608 195	29.0
Lesotho	5	74	1.0	6.6	44 251	3.3

TABLE A6 *(cont.)*

	Agricultural exports	Agricultural imports	Agricultural exports as share of total exports	Agricultural imports as share of total imports	Net food imports	Agricultural exports relative to agricultural GDP
	(Million $)	*(Million $)*	*(%)*	*(%)*	*(Thousand $)*	*(%)*
	2002–04	2002–04	2002–04	2002–04	2004	2002–04
Liberia	86	95	34.7	12.3	95 947	24.8
Madagascar	165	109	21.4	10.2	–42 225	12.7
Malawi	400	145	84.8	18.0	–58 661	61.8
Mali	298	160	31.6	13.7	24 619	21.0
Mauritania	16	295	4.7	68.1	219 316	6.5
Mauritius	363	356	19.1	14.6	–72 895	122.0
Mozambique	101	296	9.0	16.5	187 031	9.4
Namibia	232	217	16.7	11.1	–51 149	53.6
Niger	64	147	19.0	23.5	29 477	...
Nigeria	503	1 990	2.2	18.3	1 391 167	3.7
Rwanda	31	51	40.3	19.4	–4 388	4.2
Saint Helena	0	4	...	...	2 477	...
Sao Tome and Principe	5	18	102.4	47.0	9 213	50.9
Senegal	162	706	12.8	29.1	593 053	15.1
Seychelles	3	64	1.1	14.5	32 252	14.6
Sierra Leone	11	152	12.2	53.4	111 131	2.6
Somalia	91	127	...	...	57 585	...
South Africa	2 892	1 985	7.7	4.7	–680 005	56.1
Sudan	410	505	14.9	16.1	405 839	6.2
Swaziland	227	109	14.8	7.5	–207 381	167.7
Tanzania, United Republic of	394	318	35.1	15.1	18 312	9.1
Togo	117	93	21.1	12.6	–1 384	16.4
Uganda	242	219	41.5	17.4	–28 516	13.1
Zambia	211	159	18.7	9.8	–56 157	23.8
Zimbabwe	735	317	51.1	16.8	183 125	38.8
DEVELOPED MARKET ECONOMIES	**341 935**	**354 461**	**7.2**	**6.9**	**13 660 592**	**104.8**
Australia	17 356	3 862	23.5	4.3	–11 579 563	...
Austria	5 763	6 255	5.9	6.3	985 683	130.7
Belgium	22 512	19 830	8.7	8.3	–4 450 438	608.1
Canada	18 215	14 037	6.5	5.6	–4 384 226	...
Denmark	11 458	6 058	17.1	10.3	–5 300 201	276.0
Faeroe Islands	18	95	3.1	15.4	72 995	...
Finland	1 328	2 512	2.5	5.9	1 035 919	28.3
France	41 203	30 185	10.5	7.6	–5 693 852	100.8
Germany	32 813	44 422	4.3	7.4	7 412 363	137.3
Greece	2 871	4 758	22.0	11.1	2 572 538	27.9
Iceland	43	248	1.7	8.4	187 271	...
Ireland	7 634	4 399	8.0	7.9	–3 901 652	...
Israel	1 211	2 113	3.6	5.5	784 430	3.5
Italy	20 841	26 906	6.9	9.0	5 500 953	...
Japan	1 730	37 365	0.4	9.5	27 956 300	...
Luxembourg	670	1 441	5.1	8.8	536 234	463.5
Malta	88	354	3.9	11.1	278 028	...

TABLE A6 *(cont.)*

	Agricultural exports	Agricultural imports	Agricultural exports as share of total exports	Agricultural imports as share of total imports	Net food imports	Agricultural exports relative to agricultural GDP
	(Million $)	*(Million $)*	*(%)*	*(%)*	*(Thousand $)*	*(%)*
	2002–04	**2002–04**	**2002–04**	**2002–04**	**2004**	**2002–04**
Netherlands	40 749	24 427	13.6	9.1	–11 793 172	363.9
New Zealand	8 242	1 543	48.2	8.2	–7 305 016	...
Norway	545	2 624	0.8	6.4	1 739 558	17.6
Portugal	2 066	4 961	6.6	10.5	3 045 420	43.9
Spain	20 729	16 357	13.4	7.8	–5 202 034	72.5
Sweden	2 800	5 685	2.7	6.8	2 753 655	58.5
Switzerland	2 778	6 027	2.7	6.2	1 901 926	...
United Kingdom	17 678	35 202	5.7	8.7	19 688 966	110.4
United States of America	60 595	52 796	8.1	3.9	–3 181 493	...
COUNTRIES IN TRANSITION	**23 988**	**35 418**	**5.4**	**8.1**	**9 040 671**	**32.7**
Albania	30	363	6.5	19.2	312 285	2.3
Armenia	71	229	11.1	19.0	185 019	10.8
Azerbaijan	145	322	5.2	12.4	263 525	15.8
Belarus	850	1 158	8.0	9.3	65 913	50.3
Bosnia and Herzegovina	79	800	5.6	16.1	640 550	12.0
Bulgaria	866	664	11.2	6.0	–42 400	43.6
Croatia	610	1 178	9.6	8.5	709 516	30.7
Czech Republic	1 886	2 967	3.6	5.5	836 107	71.7
Estonia	391	775	7.4	10.5	250 175	110.2
Georgia	164	290	33.7	23.0	214 950	21.7
Hungary	3 150	1 752	7.1	3.6	–1 198 701	121.6
Kazakhstan	664	652	4.7	7.0	67 336	26.7
Kyrgyzstan	115	92	19.3	12.3	16 922	18.5
Latvia	308	915	10.1	16.8	369 359	70.7
Lithuania	766	811	10.5	8.1	–134 886	73.4
Macedonia, The former Yugoslav Republic of	233	341	16.8	14.2	203 858	46.1
Moldova	503	219	62.4	15.6	–28 519	127.3
Poland	4 612	4 295	8.1	6.0	–1 883 934	49.9
Romania	611	1 697	3.3	6.8	1 041 079	8.4
Russian Federation	2 125	10 906	1.5	14.0	7 451 171	9.9
Serbia and Montenegro	583	766	19.6	8.8	38 616	20.3
Slovakia	743	1 247	3.5	5.5	352 554	60.9
Slovenia	468	913	3.6	6.4	489 191	72.0
Tajikistan	192	118	23.5	11.8	71 541	54.8
Turkmenistan	99	114	2.9	4.3	69 255	...
Ukraine	2 872	1 656	11.7	7.2	–1 220 088	47.9
Uzbekistan	852	177	25.6	6.3	–99 724	28.4

TABLE A7
Economic indicators

	Poverty headcount, national	GNP per capita	GDP	GDP per capita	GDP per capita, PPP	Agriculture, value added		Agriculture, value added per worker	
	(% of population)	*(Current US$)*	*(Annual % growth)*	*(Annual % growth)*	*(Current international $)*	*(% of GDP)*	*(Annual % growth)*	*(Constant 2000 US$)*	*(Annual % growth)*
	Latest year	**2004**	**1992–2004**	**1992–2004**	**2004**	**2004**	**1992–2004**	**2003**	**1992–2003**
WORLD	...	**6 568**	**2.9**	**1.6**	**9 022**	**5.8**	**2.3**	**695**	**2.2**
DEVELOPED COUNTRIES	...	**25 374**	**2.4**	**2.1**	**25 327**	**2.4**	**0.8**	**5 680**	**3.1**
DEVELOPING COUNTRIES	...	**1 619**	**4.8**	**3.2**	**4 767**	**10.3**	**2.9**	**558**	**2.2**
ASIA AND THE PACIFIC	...	**1 285**	**6.9**	**5.4**	**4 567**	**12.2**	**3.0**	**423**	**2.3**
Bangladesh	49.8	440	5.1	2.9	1 870	21.0	3.1	313	2.1
Bhutan	...	760	6.5	3.5		...	3.5	186	1.3
Cambodia	...	350	7.1	4.7	2 423	32.9	3.4	300	1.1
China	...	1 500	10.2	9.2	5 896	13.1	3.9	349	2.9
China, Hong Kong SAR	...	26 660	4.2	2.7	30 822	...	–0.3	....	....
China, Macao SAR	...	...	3.2	1.7	...	...	...	....	....
Fiji	...	2 720	2.7	1.5	6 066	...	0.6	1 966	–0.4
French Polynesia	...	...	2.1	0.2	...	...	...	....	....
India	28.6	620	6.1	4.3	3 139	21.1	2.9	406	1.6
Indonesia	...	1 140	4.1	2.7	3 609	15.4	2.7	547	1.2
Kiribati	...	970	4.1	1.9	...	...	–0.9	....	–0.9
Korea, Republic of	...	14 000	5.5	4.6	20 499	3.7	1.3	9 792	5.3
Lao People's Dem. Rep.	...	390	6.4	3.8	1 954	46.8	4.8	460	2.3
Malaysia	...	4 520	6.2	3.7	10 276	9.5	1.6	4 851	2.2
Maldives	...	2 410	7.9	5.0	...	...	3.0	....	....
Marshall Islands	...	2 320	–0.4	–2.4	...	...	...	....	....
Micronesia, Federated States of	...	2 300	0.9	0.1	...	...	...	....	....
Mongolia	...	600	4.0	2.8	2 056	20.9	1.7	698	–1.4
Myanmar	...		8.2	6.6		...	7.0	....	....
Nepal	30.9	250	4.3	1.8	1 490	40.3	2.8	208	0.5
New Caledonia	...	...	1.3	–1.1	...	...		....	....
Pakistan	...	600	3.9	1.4	2 225	22.3	3.4	695	1.6
Palau	...	6 870	1.4	0.5	...	...	...	....	....
Papua New Guinea	...	560	3.3	0.9	2 543	...	4.3	443	1.1
Philippines	...	1 170	3.6	1.5	4 614	13.7	2.2	1 040	1.2
Samoa	...	1 840	2.9	1.9	5 613	13.6	–1.9	1 645	1.2
Singapore	...	24 760	6.3	3.9	28 077	0.1	–2.0	32 073	1.4
Solomon Islands	...	560	1.0	–1.8	1 814	...	...	....	....
Sri Lanka	...	1 010	4.7	3.8	4 390	17.8	1.3	745	0.4
Thailand	...	2 490	4.5	3.4	8 090	10.1	1.7	620	1.9
Timor-Leste	...	550	3.8	0.6	...	31.6	2.0	....	0.5
Tonga	...	1 860	2.6	2.0	7 870	28.9	2.0	....	4.1
Vanuatu	...	1 390	2.0	–0.3	3 051	...	2.7	....	1.3
Viet Nam	28.9	540	7.6	6.0	2 745	21.8	4.2	296	2.8

TABLE A7 *(cont.)*

	Poverty headcount, national	GNP per capita	GDP	GDP per capita	GDP per capita, PPP	Agriculture, value added		Agriculture, value added per worker	
	(% of population)	*(Current US$)*	*(Annual % growth)*	*(Annual % growth)*	*(Current international $)*	*(% of GDP)*	*(Annual % growth)*	*(Constant 2000 US$)*	*(Annual % growth)*
	Latest year	2004	1992–2004	1992–2004	2004	2004	1992–2004	2003	1992–2003
LATIN AMERICA AND THE CARIBBEAN	...	**3 653**	**2.7**	**1.1**	**8 060**	**6.1**	**2.6**	**2 966**	**2.5**
Antigua and Barbuda	...	9 480	3.4	1.7	12 586	...	1.2	....	–0.0
Argentina	...	3 580	2.8	1.6	13 298	10.4	2.5	9 627	3.0
Aruba	...		4.7	...	...	...	...		
Bahamas	...	...	1.9	0.2	...	...	...	....	....
Barbados	...	...	2.1	1.7		...	–1.9	18 798	1.2
Belize	...	3 940	5.5	2.5	6 747	...	5.5	....	2.6
Bermuda	...	...	2.3	1.8	...	...	...	....	....
Bolivia	...	960	3.3	1.1	2 720	15.6	2.6	755	0.7
Brazil	...	3 000	2.6	1.1	8 195	10.4	4.0	3 227	5.6
Cayman Islands	...		5.3	...	...	...	...		
Chile	...	5 220	5.5	4.0	10 874	3.8	–1.0	6 341	2.3
Colombia	...	2 020	2.7	0.9	7 256	11.5	–1.4	2 788	–1.6
Costa Rica	...	4 470	5.0	2.6	9 481	8.5	3.2	4 472	2.9
Dominica	...	3 670	0.8	0.9	5 643	...	–1.8	4 659	–0.8
Dominican Republic	...	2 100	5.3	3.7	7 449	11.4	5.5	4 142	5.1
Ecuador	...	2 210	2.4	0.7	3 963	7.1	–0.6	1 491	–0.9
El Salvador	...	2 320	3.8	1.8	5 041	9.5	1.1	1 628	0.3
Grenada	...	3 750	2.5	1.6	8 021	8.5	–0.1	3 645	2.1
Guatemala	56.2	2 190	3.6	1.2	4 313	22.5	2.5	2 247	0.3
Guyana	...	1 020	3.7	3.4	4 439	31.3	4.2	....	5.5
Haiti	...	...	–1.4	–2.8	...	27.4	–3.3	460	–3.9
Honduras	...	1 040	3.3	0.7	2 876	...	2.8	1 223	1.9
Jamaica	18.7	3 300	1.0	0.2	4 163	5.5	–1.2	1 957	1.3
Mexico	20.3	6 790	2.9	1.3	9 803	4.1	1.8	2 866	2.0
Netherlands Antilles	...	...	...	...	...	...	...		
Nicaragua	...	830	3.5	1.3	3 634	19.2	4.8	1 988	4.9
Panama	...	4 210	4.2	2.2	7 278	7.7	3.8	3 605	3.8
Paraguay	...	1 140	1.9	–0.7	4 813	27.2	3.1	2 544	1.5
Peru	...	2 360	4.0	2.3	5 678	10.1	4.6	1 770	3.7
Saint Kitts and Nevis	...	...	4.0	3.0	...	...	0.8	2 123	2.5
Saint Lucia	...	4 180	2.0	0.6	6 324	...	–5.3	1 738	–5.9
Saint Vincent and the Grenadines	...	3 400	2.5	1.9	6 398	8.9	1.7	2 477	1.7
Suriname	...	2 230	1.7	0.9	...	...	1.6	3 002	0.8
Trinidad and Tobago	...	8 730	4.3	3.8	12 182	0.9	0.4	2 135	2.7
Uruguay	...	3 900	2.1	1.4	9 421	11.4	3.3	7 363	2.9
United States Virgin Islands	...	...	...	...	...	...	...		
Venezuela, Bolivarian Republic of	...	4 030	1.3	–0.7	6 043	...	1.1	6 071	1.6

TABLE A7 *(cont.)*

	Poverty headcount, national	GNP per capita	GDP	GDP per capita	GDP per capita, PPP	Agriculture, value added		Agriculture, value added per worker	
	(% of population)	*(Current US$)*	*(Annual % growth)*	*(Annual % growth)*	*(Current international $)*	*(% of GDP)*	*(Annual % growth)*	*(Constant 2000 US$)*	*(Annual % growth)*
	Latest year	2004	1992–2004	1992–2004	2004	2004	1992–2004	2003	1992–2003
NEAR EAST AND NORTH AFRICA	...	**3 230**	**3.8**	**1.7**	**6 617**	**9.9**	**2.6**	**2 140**	**2.1**
Afghanistan	...	...	17.3	...	...	...	...		
Algeria	...	2 270	2.9	1.1	6 603	9.8	4.4	2 113	1.8
Bahrain	...	14 370	5.2	2.5	20 758	...	...	....	....
Cyprus	...	16 510	4.1	2.6	22 805	...	4.7	....	....
Egypt	16.7	1 250	4.5	2.5	4 211	15.1	3.2	1 996	2.2
Iran, Islamic Republic of	...	2 320	4.1	2.5	7 525	10.8	3.7	2 480	2.4
Iraq	...		6.6	26.1	...	...	0.3		
Jordan	...	2 190	5.6	2.2	4 688	2.8	2.6	996	–2.4
Kuwait	...	22 470	6.0	–0.8	19 384	...	6.6	....	....
Lebanon	...	6 010	4.2	2.3	5 837	6.9	2.7	45 298	5.7
Libyan Arab Jamahiriya	...	4 400	3.5	1.5	...	...	...		
Morocco	...	1 570	2.8	1.2	4 309	15.9	5.8	1 711	5.9
Oman	...	9 070	4.2	1.9	15 259	1.9	4.0	....	....
Saudi Arabia	...	10 140	2.5	–0.2	...	4.0	1.7	14 618	5.5
Syrian Arab Republic	...	1 230	4.3	1.6	3 610	23.0	5.4	2 768	2.0
Tunisia	...	2 650	4.7	3.3	7 768	12.6	3.0	2 639	1.3
Turkey	27	3 750	3.9	2.2	7 753	12.9	1.2	1 766	0.1
United Arab Emirates	...	23 770	5.8	–0.8	24 056	2.7	9.8	....	....
Yemen	...	550	5.2	1.5	879	13.8	6.3	524	3.8
SUB-SAHARAN AFRICA	...	**692**	**3.3**	**0.8**	**1 963**	**16.2**	**3.4**	**327**	**1.4**
Angola	...	930	3.6	0.8	2 180	9.1	4.2	161	1.2
Benin	...	450	4.7	1.3	1 091	36.9	5.6	606	4.2
Botswana	...	4 360	5.1	3.6	9 945	2.6	–0.5	407	–2.7
Burkina Faso	46.4	350	4.1	1.1	1 169	30.8	4.3	164	0.7
Burundi	...	90	–0.7	–2.5	677	51.4	–0.1	101	–1.4
Cameroon	40.2	810	2.8	0.5	2 174	44.2	5.8	1 215	4.9
Cape Verde	...	1 720	5.8	3.3	5 727	6.8	4.7	1 666	4.5
Central African Republic	...	310	0.9	–1.0	1 094	55.6	3.5	425	3.2
Chad	...	250	5.8	2.5	2 090	...	3.1	257	3.9
Comoros	...	560	2.1	–0.1	1 943	41.1	3.7	386	2.0
Congo	...	760	2.0	–1.2	978	6.0	2.7	347	1.4
Congo, Democratic Republic of the	...	110	–2.6	–5.2	705	...	0.3	...	–1.4
Côte d'Ivoire	...	760	1.7	–0.7	1 551	22.1	2.6	802	2.3
Djibouti	...		0.1	–2.3	1 993	...	1.0	....	–0.6
Equatorial Guinea	...	...	18.9	16.1	...	...	5.6	654	3.6
Eritrea	...	190	4.8	2.2	977	15.1	2.3	57	0.8
Ethiopia	44.2	110	4.6	2.4	756	46.9	2.4	109	–1.3
Gabon	...	4 080	1.9	–0.6	6 623	8.1	1.0	1 805	1.2

TABLE A7 *(cont.)*

	Poverty headcount, national	GNP per capita	GDP	GDP per capita	GDP per capita, PPP	Agriculture, value added		Agriculture, value added per worker	
	(% of population)	*(Current US$)*	*(Annual % growth)*	*(Annual % growth)*	*(Current international $)*	*(% of GDP)*	*(Annual % growth)*	*(Constant 2000 US$)*	*(Annual % growth)*
	Latest year	**2004**	**1992–2004**	**1992–2004**	**2004**	**2004**	**1992–2004**	**2003**	**1992–2003**
Gambia	...	280	3.7	0.4	1 991	32.0	4.5	220	0.9
Ghana	...	380	4.4	2.0	2 240	37.9	3.7	346	0.9
Guinea	...	410	3.9	1.1	2 180	24.9	4.5	231	2.6
Guinea-Bissau	...	160	1.1	–1.9	722	62.6	3.7	252	1.1
Kenya	...	480	2.3	–0.3	1 140	26.8	2.1	148	–1.4
Lesotho	...	730	3.3	2.5	2 619	17.7	1.4	499	0.8
Liberia	...	120	6.2	1.8	...	...	...	....	....
Madagascar	...	290	2.5	–0.4	857	28.8	1.8	173	–0.6
Malawi	...	160	3.0	0.9	646	39.1	7.3	128	6.2
Mali	...	330	5.0	2.1	998	35.6	3.5	247	2.6
Mauritania	...	530	4.9	2.1	1 940	18.3	2.7	271	0.7
Mauritius	...	4 640	5.0	3.8	12 027	6.1	0.6	4 846	2.5
Mozambique	...	270	6.8	4.1	1 237	21.6	5.3	146	3.1
Namibia	...	2 380	4.1	1.5	7 418	9.9	2.6	1 036	1.8
Niger	...	210	2.5	–0.9	779	...	3.0	174	0.1
Nigeria	...	430	3.3	0.8	1 154	16.6	3.9	871	3.2
Rwanda	...	210	4.1	1.7	1 263	40.5	4.4	234	2.8
Sao Tome and Principe	...	390	2.6	0.6	...	17.1	3.5	226	1.2
Senegal	...	630	3.7	1.2	1 713	17.0	3.1	265	0.6
Seychelles	...	8 190	2.6	1.3	16 652	2.6	0.1	554	–0.3
Sierra Leone	70.2	210	–1.9	–3.9	561	...	–9.9	295	–2.5
Somalia	...	...	...	...	...	...	...		
South Africa	...	3 630	2.5	0.6	11 192	3.4	1.0	2 251	2.5
Sudan	...	530	5.7	3.4	1 949	39.3	9.6	....	8.0
Swaziland	...	1 660	2.9	0.2	5 638	12.6	–0.0	1 189	–0.6
Tanzania, United Republic of	35.7	320	4.2	1.6	674	44.8	3.7	290	1.4
Togo	...	310	2.8	–0.2	1 536	41.2	3.3	405	1.2
Uganda	37.7	250	6.6	3.2	1 478	32.2	3.9	231	1.7
Zambia	...	400	2.0	–0.2	943	20.9	4.8	210	3.6
Zimbabwe	...	620	–1.2	–2.6	2 065	17.8	0.7	....	1.0
DEVELOPED MARKET ECONOMIES	**...**	**35 312**	**2.5**	**1.8**	**32 566**	**1.9**	**0.7**	**23 081**	**4.4**
Australia	...	27 070	3.8	2.8	30 331	...	4.0	....	2.2
Austria	...	32 280	2.1	1.7	32 276	1.9	1.3	25 117	7.4
Belgium	...	31 280	2.0	1.7	31 096	1.4	2.6	41 876	6.5
Canada	...	28 310	3.2	2.2	31 263	...	0.7	....	2.5
Denmark	...	40 750	2.1	1.7	31 914	2.3	2.4	36 420	6.0
Finland	...	32 880	2.7	2.4	29 951	3.2	2.0	32 031	6.9
France	...	30 370	2.0	1.6	29 300	2.5	1.7	39 038	5.8
Germany	...	30 690	1.5	1.2	28 303	1.1	0.5	22 911	6.4
Greece	...	16 730	2.9	2.3	22 205	6.6	–0.1	9 144	1.1
Iceland	...	37 920	2.9	1.9	33 051	...	0.4	....	1.7
Ireland	...	34 310	7.0	5.8	38 827	...	...	....	....

TABLE A7 *(cont.)*

	Poverty headcount, national	GNP per capita	GDP	GDP per capita	GDP per capita, PPP	Agriculture, value added		Agriculture, value added per worker	
	(% of population)	*(Current US$)*	*(Annual % growth)*	*(Annual % growth)*	*(Current international $)*	*(% of GDP)*	*(Annual % growth)*	*(Constant 2000 US$)*	*(Annual % growth)*
	Latest year	**2004**	**1992–2004**	**1992–2004**	**2004**	**2004**	**1992–2004**	**2003**	**1992–2003**
Israel	...	17 360	4.0	1.5	24 382	...	...	....	....
Italy	...	26 280	1.4	1.3	28 180	2.6	0.9	21 437	4.9
Japan	...	37 050	1.1	0.9	29 251	...	–2.4	....	3.3
Luxembourg	...	56 380	4.5	3.2	69 961	0.6	1.6	....	....
Malta	46.3	12 050	3.3	2.5	18 879	...	...	....	....
Netherlands	...	32 130	2.3	1.6	31 789	2.4	1.6	....	4.1
New Zealand	...	19 990	3.5	2.4	23 413	...	2.7	....	2.5
Norway	...	51 810	3.1	2.6	38 454	1.6	1.4	38 043	3.7
Portugal	...	14 220	2.0	1.5	19 629	3.7	0.3	....	3.4
San Marino	...		2.5	...	13 825	...	...		
Spain	...	21 530	2.8	2.1	25 047	3.5	0.6	15 656	4.5
Sweden	...	35 840	2.3	1.9	29 541	1.8	0.7	31 960	3.5
Switzerland	...	49 600	1.1	0.5	33 040	...	–2.1	....	....
United Kingdom	...	33 630	2.7	2.4	30 821	1.0	0.1	26 471	1.4
United States of America	...	41 440	3.3	2.1	39 676	...	3.8	....	6.0
COUNTRIES IN TRANSITION	**...**	**3 672**	**1.9**	**2.1**	**8 963**	**7.0**	**0.8**	**2 007**	**2.5**
Albania	25.4	2 120	5.6	6.0	4 978	24.7	5.6	1 393	6.6
Armenia	50.9	1 060	2.4	3.5	4 101	23.4	1.8	2 809	6.2
Azerbaijan	49	940	0.0	–1.0	4 153	12.3	1.1	1 076	0.4
Belarus	41.9	2 140	1.6	1.9	6 970	11.0	–0.2	2 766	2.9
Bosnia and Herzegovina	19.5	2 040	19.5	18.4	7 032	11.9	4.4	....	13.9
Bulgaria	12.8	2 750	0.9	1.7	8 078	11.1	1.9	6 826	8.4
Croatia	...	6 820	2.1	2.3	12 191	8.2	–1.5	9 302	5.3
Czech Republic	...	9 130	2.1	2.1	19 408	3.1	2.2	5 280	3.5
Estonia	...	7 080	2.5	3.6	14 555	4.3	–2.4	3 440	1.2
Georgia	54.5	1 060	–1.9	–0.6	2 844	17.8	–4.4	1 503	4.1
Hungary	...	8 370	2.9	3.1	16 814	...	1.4	3 990	1.7
Kazakhstan	...	2 250	1.5	2.2	7 440	8.4	–0.6	1 436	–1.5
Kyrgyzstan	47.6	400	–0.6	–1.5	1 935	36.6	2.8	961	3.5
Latvia	...	5 580	1.6	2.7	11 653	4.1	–2.5	2 513	2.9
Lithuania	...	5 740	0.5	1.1	13 107	6.2	1.6	4 424	6.3
Macedonia, The former Yugoslav Republic of	...	2 420	–0.0	–0.4	6 610	13.2	–0.6	3 096	3.0
Moldova	48.5	720	–3.6	–3.3	1 729	21.3	–6.1	706	–4.8
Poland	...	6 100	4.3	4.3	12 974	3.4	2.0	1 397	3.1
Romania	...	2 960	1.7	2.2	8 480	14.4	2.1	3 621	4.8
Russian Federation	...	3 400	–0.5	–0.3	9 902	5.0	–0.1	2 323	2.3
Serbia and Montenegro	...	2 680	2.9	5.7	...	18.6	–2.1	....	....
Slovakia	...	6 480	3.0	2.8	14 623	3.6	3.4	....	....

TABLE A7 *(cont.)*

	Poverty headcount, national	GNP per capita	GDP	GDP per capita	GDP per capita, PPP	Agriculture, value added		Agriculture, value added per worker	
	(% of population)	*(Current US$)*	*(Annual % growth)*	*(Annual % growth)*	*(Current international $)*	*(% of GDP)*	*(Annual % growth)*	*(Constant 2000 US$)*	*(Annual % growth)*
	Latest year	**2004**	**1992–2004**	**1992–2004**	**2004**	**2004**	**1992–2004**	**2003**	**1992–2003**
Slovenia	...	14 770	3.1	3.2	20 939	...	–0.5	30 713	10.1
Tajikistan	...	280	–2.8	–4.1	1 202	24.2	–0.7	454	1.3
Turkmenistan	...	...	0.5	–1.4	...	...	3.2	1 352	4.1
Ukraine	19.5	1 270	–2.5	–1.8	6 394	12.1	–0.9	1 400	1.6
Uzbekistan	27.5	450	1.5	–0.2	1 869	31.1	2.6	1 601	2.0

TABLE A8
Total factor productivity

	Total factor productivity change		Efficiency change		Technological change	
	1961–1981	1981–2000	1961–1981	1981–2000	1961–1981	1981–2000
	(Average annual percentage change)					
DEVELOPING COUNTRIES	**–2.6**	**1.7**	**0.0**	**–0.4**	**–2.6**	**2.0**
ASIA AND THE PACIFIC	**–3.5**	**1.9**	**–0.1**	**–0.6**	**–3.4**	**2.5**
Bangladesh	–3.2	1.1	0.0	0.0	–3.2	1.1
China, Mainland	–4.4	3.6	0.0	0.0	–4.4	3.6
China, Taiwan Province of	0.5	0.3	0.0	0.0	0.5	0.3
Fiji	–0.4	–0.3	–0.1	–2.3	–0.2	2.0
India	–5.2	–1.0	0.0	–2.7	–5.2	1.7
Indonesia	–0.5	–1.1	0.0	0.0	–0.5	–1.1
Korea, Democratic People's Republic of	1.0	1.6	–1.4	1.3	2.5	0.2
Korea, Republic of	–4.5	–1.2	0.0	0.0	–4.5	–1.2
Lao People's Dem. Rep.	–0.2	3.3	–0.6	1.9	0.5	1.4
Malaysia	1.8	1.5	0.0	0.0	1.8	1.5
Mongolia	–8.3	3.9	–0.7	1.4	–7.7	2.5
Myanmar	0.0	1.8	0.6	0.5	–0.6	1.3
Nepal	–3.8	1.2	–0.2	0.0	–3.6	1.2
Pakistan	–0.7	2.7	–1.8	0.2	1.1	2.5
Philippines	1.3	0.4	0.0	0.0	1.3	0.4
Sri Lanka	0.7	–0.2	0.2	–1	0.6	0.8
Thailand	0.2	1.4	0.2	0.0	–0.1	1.4
Viet Nam	0.4	1.0	–0.2	–0.6	0.7	1.6
LATIN AMERICA AND THE CARIBBEAN	**–1.2**	**0.4**	**0.1**	**–0.1**	**–1.3**	**0.5**
Argentina	–2.2	–3.4	0.0	0.0	–2.2	–3.4
Barbados	2.9	0.9	0.3	–1.8	2.6	2.7
Belize	2.0	1.0	1.4	–1.0	0.5	2.0
Bolivia	0.6	2.6	1	0.0	–0.4	2.6
Brazil	–3.0	1.1	0.0	0.0	–3	1.1
Chile	1.5	2.9	–0.2	0.1	1.7	2.8
Colombia	1.4	1.0	0.3	0.0	1.1	1.0
Costa Rica	2.6	2.8	1.0	0.3	1.6	2.4
Cuba	–0.9	0.2	–1.4	–1.6	0.5	1.8
Dominican Republic	0.2	0.5	0.0	0.0	0.2	0.5
Ecuador	–1.4	1.3	0.0	0.1	–1.3	1.2
El Salvador	1.4	–0.1	0.3	–1.3	1.1	1.2
Guadeloupe	–0.6	1.7	–2.4	0.1	1.8	1.6
Guatemala	2.1	0.8	0.7	0.0	1.4	0.8
Guyana	1.2	1.8	–0.3	0.8	1.5	1.0
Haiti	–1.4	–0.2	0.0	0.0	–1.4	–0.2
Honduras	–1.3	0.4	0.3	–0.6	–1.6	1.0
Jamaica	0.6	1.6	0.3	–0.8	0.2	2.4
Martinique	–1.5	2.1	–1.4	0.0	–0.1	2.1
Mexico	1.2	1.1	0.6	–0.6	0.6	1.7
Nicaragua	–4.3	1.5	–1.2	0.7	–3.1	0.9
Panama	–0.2	0.5	–1.1	–0.5	0.9	1.0
Paraguay	–0.5	–1.9	0.0	0.0	–0.5	–1.9

TABLE A8 *(cont.)*

	Total factor productivity change		Efficiency change		Technological change	
	1961–1981	1981–2000	1961–1981	1981–2000	1961–1981	1981–2000
	(Average annual percentage change)					
Peru	–0.9	2.5	–0.9	0.5	0.0	2.0
Saint Lucia	–0.7	–3.0	0.0	–2.9	–0.7	–0.2
Saint Vincent and the Grenadines	–1.0	0.2	–2.9	1.4	1.9	–1.2
Suriname	3.3	–4.3	1.8	–4.0	1.4	–0.3
Trinidad and Tobago	–1.6	0.5	–0.7	–1.2	–0.9	1.7
Uruguay	–1.5	0.6	0.0	0.0	–1.5	0.6
Venezuela, Bolivarian Republic of	1.8	2.0	1.3	0.1	0.5	1.9
NEAR EAST AND NORTH AFRICA	**0.6**	**2.4**	**–0.2**	**0.2**	**0.7**	**2.1**
Afghanistan	–1.5	2.1	0.3	0.0	–1.7	2.1
Algeria	–0.8	3.2	–2.2	1.1	1.4	2.0
Cyprus	3.3	4.4	–0.8	0.4	4.2	4.1
Egypt	1.1	2.1	0.0	0.0	1.1	2.1
Iran, Islamic Rep. of	0.2	2.3	–0.2	0.0	0.3	2.3
Iraq	–3.1	–1.0	–2.3	–1.9	–0.8	0.9
Jordan	–3.4	1.6	–1.0	–0.1	–2.4	1.7
Lebanon	3.8	2.7	0.0	0.0	3.8	2.7
Libyan Arab Jamahiriya	4.6	4.5	3.5	2.0	1.1	2.4
Morocco	1.7	2.9	0.6	1.2	1.1	1.7
Saudi Arabia	–3.3	4.8	–1.9	2.4	–1.4	2.3
Syrian Arab Republic	1.4	0.3	0.0	–0.1	1.4	0.4
Tunisia	3.3	2.0	0.7	2.2	2.5	–0.2
Turkey	1.0	2.7	0.0	0.0	1.0	2.7
Yemen	–10.3	2.1	–3.3	1.6	–7.3	0.4
SUB-SAHARAN AFRICA	–3.7	1.9	0.1	–0.0	–3.8	2.0
Angola	–3.7	5.3	–3.5	4.1	–0.2	1.1
Benin	0.5	2.4	0.5	0.3	0.1	2.0
Botswana	–2.4	–2.2	–0.2	–1	–2.2	–1.2
Burkina Faso	–9.0	–0.5	–1.0	–2.5	–8.1	2.0
Burundi	–11.5	–0.4	0.0	0.0	–11.5	–0.4
Cameroon	–6.8	1.1	0.0	0.0	–6.8	1.1
Chad	–3.1	0.2	0.0	0.0	–3.1	0.2
Congo	–2.3	–1.4	0.0	0.0	–2.3	–1.4
Côte d'Ivoire	–4.1	1.9	0.0	0.0	–4.1	1.9
Eritrea	...	–1.9	...	–2.2	...	0.3
Ethiopia	...	3.7	...	0.0	...	3.7
Gabon	–5.2	2.9	0.0	0.0	–5.2	2.9
Gambia	–4.6	–0.7	–2.8	–0.5	–1.9	–0.2
Ghana	–6.6	4.3	0.0	0.0	–6.6	4.3
Guinea	–2.4	–1.4	0.0	0.0	–2.4	–1.4
Kenya	0.8	1.1	2.1	–0.4	–1.3	1.5
Lesotho	–2.9	–0.5	–2.7	–1.1	–0.2	0.6
Madagascar	–0.9	0.6	0.0	0.0	–0.9	0.6
Malawi	–0.8	2.6	–1.3	1.6	0.4	1.0

TABLE A8 *(cont.)*

	Total factor productivity change		Efficiency change		Technological change	
	1961–1981	1981–2000	1961–1981	1981–2000	1961–1981	1981–2000
	(Average annual percentage change)					
Mali	–5.2	–1.6	0.0	–2.2	–5.2	0.6
Mauritius	0.6	–0.3	0.0	0.0	0.6	–0.3
Mozambique	–2.3	0.6	0.0	–0.2	–2.3	0.8
Niger	–6.3	1.3	0.0	0.0	–6.3	1.3
Nigeria	–10.5	3.6	0.0	0.0	–10.5	3.6
Réunion	2.0	5.8	–1.1	2.6	3.2	3.1
Rwanda	1.6	0.6	0.0	0.0	1.6	0.6
Senegal	–3.4	0.2	–2.3	–0.3	–1.1	0.5
Sierra Leone	–0.6	1.5	–0.7	1.1	0.1	0.4
Sudan	–0.7	2.0	0.0	0.0	–0.7	2.0
Swaziland	–0.4	1.9	0.1	0.5	–0.5	1.4
Tanzania, United Republic of	1.1	2.2	1.7	0.0	–0.6	2.2
Togo	–3.6	1.3	0.4	–0.3	–3.9	1.6
Uganda	1.6	–3.8	0.0	0.0	1.6	–3.8
Zambia	–0.4	1.4	–0.1	–1.2	–0.3	2.6
Zimbabwe	0.7	0.8	–0.7	–0.4	1.4	1.3
	1961–1981	1993–2000	1961–1981	1993–2000	1961–1981	1993–2000
COUNTRIES IN TRANSITION	**...**	**1.9**	**...**	**0.0**	**...**	**1.8**
Albania	...	5.8	...	4.0	...	1.7
Armenia	...	7.5	...	7.3	...	0.2
Azerbaijan	...	8.1	...	6.1	...	1.9
Belarus	...	–1.7	...	–2.4	...	0.7
Bosnia and Herzegovina	...	–3.4	...	–2.8	...	–0.7
Bulgaria	...	4.3	...	1.4	...	2.9
Croatia	...	2.4	...	0.0	...	2.4
Czech Republic	...	–2.0	...	0.0	...	–2.0
Estonia	...	0.3	...	1.7	...	–1.4
Georgia	...	–0.4	...	–0.9	...	0.5
Hungary	...	0.0	...	0.0	...	0.0
Kazakhstan	...	8.1	...	1.5	...	6.5
Kyrgyzstan	...	3.9	...	1.5	...	2.1
Latvia	...	–0.9	...	0.0	...	–0.9
Lithuania	...	–2.1	...	–1.3	...	–0.8
Macedonia, The former Yugoslav Republic of	...	–6.9	...	–4.9	...	–2.1
Moldova	...	5.7	...	2.9	...	2.8
Poland	...	–0.2	...	0.0	...	–0.2
Romania	...	0.6	...	–0.9	...	1.5
Russian Federation	...	3.3	...	0.0	...	3.3
Serbia and Montenegro	...	–1.3	...	0.0	...	–1.3
Slovakia	...	–2.4	...	–1.7	...	–0.8
Slovenia	...	2.3	...	0.0	...	2.3
Tajikistan	...	6.1	...	4.2	...	1.8
Turkmenistan	...	0.7	...	–1.5	...	2.2
Ukraine	...	2.8	...	0.0	...	2.8
Uzbekistan	...	–0.2	...	–1.2	...	1.0

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2006

The State of Food and Agriculture 2006 examines the issues and controversies surrounding international food aid and seeks to find ways to preserve its essential humanitarian role while minimizing the possibility of harmful secondary impacts. Food aid has rightly been credited with saving millions of lives; indeed, it is often the only thing standing between vulnerable people and death. Yet food aid is sharply criticized as a donor-driven response that creates dependency on the part of recipients and undermines local agricultural producers and traders upon whom sustainable food security depends. The economic evidence regarding these issues is surprisingly thin, but it confirms that the timing and targeting of food aid are central to achieving immediate food security objectives while minimizing the potential for harm. Reforms to the international food aid system are necessary but they should be undertaken carefully because lives are at risk.

Included in this issue is a mini CD-ROM of the FAO Statistical Yearbook 2005–2006 Vol. 2/1, containing time series data for 200 countries in Arabic, Chinese, English, French and Spanish.

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