

**NEPAD study to explore further
options for food-security reserve
systems in Africa**

**Study carried out by the New Partnership for Africa's
development with technical support from the United Nations
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PREFACE

Africa has suffered from serious food shortages over the last three decades as a result of natural disasters and civil strife. In the last decade HIV/AIDS has worsened the situation as many productive farming communities have been decimated. Many attempts have been made by African countries in the past to address the problem of food insecurity, but with mixed results. Today, more than one third of the population is chronically hungry and undernourished. The problem is particularly severe among women and children. The spectre of suffering induced by large-scale emergencies that lead to loss of livelihood, displacement of population and loss of life is particularly haunting.

In recognition of this crisis, African Heads of State at the African Union Summit in July 2003 expressed deep concern at the deterioration of the food security situation in many of their countries and resolved to take action on a number of fronts to resolve the problem. In this connection, they decided to launch a study of food-reserve systems with a view to identifying actions that could be taken at the regional level to ensure the adequacy of food supplies in all times and in all places, and access by food-insecure people to the food they need.

NEPAD has responded by undertaking this study on food reserve systems in Africa. The study reviews experiences with food reserves in a sample of eight countries representative of the Sahel, East and Southern Africa and the Horn of Africa. The findings of the study have highlighted both the problems that have reduced the effectiveness of food reserve systems in supporting food security and the policy changes that have contributed to enhancing food security in some countries concerned. The report sets out several options for consideration and concrete follow-up by the African Union.

This is the time to act. African Heads of State should now take the necessary decisions and allocate the resources required to implement the recommendations, as appropriate. NEPAD will work with the regional economic communities and member states to ensure that the findings of this study are communicated to all levels and that appropriate mechanisms are established to ensure coordinated regional action.

NEPAD thanks the United Nations World Food Programme, the Food and Agriculture Organization of the United Nations, the Southern Africa Development Community, the World Bank, the International Food Policy Research Institute and the European Union, who collaborated in the realization of this study. The World Food Programme took technical leadership for realization of the study and preparation of the report. NEPAD regards the presentation of this report as the beginning of a process of further consultation and dialogue to which its secretariat is fully committed. With guidance from the African Union, NEPAD will endeavour to implement the Summit decisions expeditiously, with a view to transforming the result of this study into an action programme that will give real meaning to the commitment to eliminate the threat of hunger and starvation from the continent of Africa.

Prof. Wiseman Nkuhlu

Chairperson of the NEPAD Steering Committee

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EXECUTIVE SUMMARY

Africa has suffered from increasingly serious food crises over the last three decades as a result of natural and man-made disasters and the growing impoverishment of the rural population. The combination of drought, civil strife, poverty and the impact of HIV/AIDS has resulted in a high rate of undernourishment among Africans: over 40 percent of the total population, especially women and children, experience chronic food insecurity. Among children, malnutrition is responsible for very high rates of stunting and infant mortality.

Food shortages reached famine proportions in the Sahel and the Horn of Africa in 1972–1974 and in 1984–1985 in 25 African countries. Southern Africa faced particularly severe food shortages in 1992–1993 and 2002–2003. The Horn was badly affected in 2000–2001; Ethiopia's food crisis in 2002–2003 affected 13 million people. Coming on top of an already unacceptable situation, these mostly drought-induced food shortages have caused intolerable levels of suffering, leading to the loss of millions of lives and to displacement and loss of livelihood for countless other Africans.

African leaders have decided to take action to reverse this trend. At the second summit meeting of the African Union in Maputo in July 2003, African Heads of State and Governments resolved “to ensure the establishment of regional food-reserve systems, including food stocks, linked to Africa's own production, and the development of policies and strategies under the African Union and Regional Economic Communities, to fight hunger and poverty in Africa”. The Heads of State agreed to launch a study of food-reserve systems with a view to identifying actions that could be taken at the regional level, including the possibility of establishing regional stocks, as a means of contributing to the availability of supplies in times of emergency and acute food crisis, and ensuring that people without purchasing power have access to the food they need. This is a major effort by African leaders to meet the Millennium Development Goals.

The mandate given for this study was to focus on food-reserve systems; it is not meant to be a study of the broad issue of food security, although some elements of food security are touched upon. It is based on a review of the origins and operational experiences of eight sample countries: in the Sahel, Burkina Faso, Mali and Niger; in Southern Africa, Malawi, Tanzania and Zambia; and in the Horn of Africa, Ethiopia and the Sudan. It draws lessons from these experiences that could enhance the effectiveness of existing and future national food-reserve systems in supporting food security policies.

It was commissioned by the New Partnership for Africa's Development, was undertaken by a team of consultants coordinated by the World Food Programme. The Southern African Development Community and the World Bank conducted a parallel study in Malawi, Tanzania and Zambia with an emphasis on insurance options that could be used to ensure stability of supplies. The findings of this study and of a preliminary report prepared by the Food and Agriculture Organization of the United Nations for its Regional Conference for Africa in March 2004 were taken into consideration in finalizing the study for the New Partnership for Africa's Development. Principal donors, United Nations agencies and non-governmental organizations have been consulted. The country reports are available in English at the secretariat of the New Partnership for Africa's Development.

MAIN FINDINGS

The main findings of the study take the form of lessons learned about preconditions for effective operation of physical and financial reserves and options for national and regional actions. These are summarized below.

Multiplicity and lack of clarity of objectives. Many established food reserves have attempted to cover too many conflicting objectives. The underlying aim of maintaining price stability at levels affordable by urban populations has often been confused with the objectives of meeting urgent food needs arising from emergency situations and addressing the needs of populations suffering from chronic food insecurity. This has led to complex management structures with overlapping and sometimes contradictory policy priorities, often resulting in inefficient and inappropriate use of resources.

Food-security policy. In the 1960s and 1970s, food-security policies focused on improving agricultural production to maintain self-sufficiency; food reserves were generally established to compensate for variability in domestic harvests. The gradual evolution of comprehensive food-security policies in some of the countries reviewed led to a restructuring of food-reserve systems. The new approach combined physical reserves with complementary market-based instruments to achieve food-security objectives; it enjoyed strong donor support that contributed to the success of the experiences. The absence of such comprehensive policies in other countries had a negative impact on the effectiveness of their food reserves.

African leaders give high priority to the problem of food insecurity and recurrent emergencies. This calls for development of well articulated food-security policies in all parts of the continent that would encourage the participation of all stakeholders, including local traders, financial institutions and community-based organizations. Physical and financial food-reserve systems could play a strong supporting role and would be more effective in attaining their objectives if implemented in the context of such policies.

Trade policy. All the countries studied have moved away from strict monopolistic state trading of food commodities as a result of World Bank and International Monetary Fund structural adjustment programmes that were introduced in the 1980s. But many obstacles still impede both internal and intra-regional trade. The most pressing constraint to trade is the poor state of Africa's transport infrastructure, especially road and rail networks, and the telecommunications system, which is not sufficiently developed to encourage modern commercial operations. Even in the worst drought years, serious food deficits may exist side-by-side with surpluses in a country or its neighbours, but logistics constraints prevent locally produced surplus food from reaching needy people.

Another constraint that hinders further development of the considerable informal cross-border trade that takes place in natural trading areas is created by arbitrary restrictions that are sometimes imposed on trade in food commodities by national authorities in the name of food security. Inadequate information and financial capacity among local traders and banks also hinder intra-regional trade; quality controls and standards that could facilitate trade are generally absent.

Early-warning and food-security information. Information systems have not performed equally well in providing reliable data on production prospects, availability of supplies,

consumption requirements and market conditions. In several countries of eastern and southern Africa, government decisions have been based on inadequate or inconsistent data.

Reserve size. Following market liberalization, stock levels of national food reserves in some study countries were set at very high levels that were hardly ever met. In other countries, reserves with stock levels just sufficient to meet the estimated immediate needs of target groups for emergency aid have normally been adequate pending commercial imports or food aid. In most countries this is equal to two to three month's import requirements, based on average figures from the previous five to ten years. Establishing emergency reserves of this size will minimize management costs and storage losses; stock rotations will not have much effect on prices or negative impact on future production.

Decision-making. National food reserves have been managed through government agencies, which often lack sufficient decision-making authority; political interference has had negative effects on management. The tendency of governments to use national stocks to meet political objectives and the use of stocks without adequate arrangements for replenishment have reduced their effectiveness

Reserve management. Management of food reserves has been problematic in all countries included in this study. Complicated management structures with overlapping responsibilities, poor management of storage infrastructure resulting in high rates of loss for stored grain, low or unpredictable turnover and high storage costs have all contributed to reducing the efficiency of food reserves. The low skill level of many staff and lack of financial resources to cover operational costs have been serious handicaps in the management of food reserves in Africa.

GENERAL CONCLUSIONS

1. All African countries would benefit from clear food-security policies that (i) provide food safety-nets for chronically food-insecure people, (ii) envision special relief programmes in the event of food emergencies (iii) explain the roles of domestic food production, food trade and food reserves in maintaining adequate supplies, and (iv) clearly specify the roles to be played by governments, farmers and the private sector.
2. Domestic food production will continue to be the major source of food supply throughout Africa for the foreseeable future; actions to improve productivity and production performance will therefore be crucial for the success of any food-security policy.
3. Countries have a variety of options for maintaining supplies when harvests are poor and for managing supplies destined for beneficiaries of safety-net or emergency food-relief programmes; these range from complete reliance on trade to relatively large physical reserves complemented by financial reserves and measures to promote development of domestic food markets.
4. If an option that involves holding physical reserves is preferred, a number of measures have to be put in place, including: (i) compatible food-security, market-development and trade policies; (ii) credible early-warning and food-security information systems; (iii) suitably located and well maintained transport, storage and communications infrastructures; (iv) clear stock-management and accounting procedures; (v) trained staff; and (vi) adequate funding arrangements. A system that meets all these conditions is

referred to as an integrated food-security reserve system. Mali's *Programme pour la restructuration du marché des céréales* is the best example of an integrated food-reserve system reviewed in the course of this study.

5. The Ethiopian Emergency Food Security Reserve is one of the best current examples of an emergency food-security reserve system.
6. Action at regional level could complement national food-security policies and reserve systems in the areas of market information, early warning, assessments of food security and food needs, facilitation of cross-border and intra-regional trade, and emergency preparedness and response.

PLATFORM FOR NATIONAL AND REGIONAL ACTION

National physical reserves

The degree of suffering as a result of acute food crises in Africa is intolerable. It is recommended that African governments with a record of food insecurity consider the establishment of emergency food-security reserves where appropriate if they have not done so already.

1. Emergency reserve stocks should be sufficient to meet urgent food needs resulting from emergency-induced food shortages for up to three months.
2. Chronic food needs among poor and vulnerable populations should be met through programmes designed for that purpose. National food-reserve stocks can be rotated through such safety-net programmes.
3. Competent and experienced independent bodies should be mobilized or established to provide policy guidance and manage food reserves. Political interference in decision-making should be avoided.
4. Staff with skills appropriate to managing stocks and keeping accurate account of stock movements should be mobilized or recruited. There should be an incentive structure to retain them and ensure a high standard of performance.

Complementary national measures

1. Physical reserves should have financial components for purchasing urgently needed food from places close to the area of operation where there are surpluses, and for covering management and logistics costs.
2. National early-warning and food-security information systems should be established or strengthened to provide reserve managers with credible and timely information about harvest prospects, potential food shortages and relief food needs of the vulnerable population.
3. Private stock-holding should be encouraged through measures such as promoting greater use of traditional on-farm storage technologies with low rates of post-harvest loss, promoting pilot schemes to provide farmers with credit against

warehouse receipts for stored grain and encouraging development of local milling and processing capacity.

4. Governments should make clear their commitment to creating an enabling environment for development of domestic agricultural markets, including (i) making a commitment to refrain from imposing cumbersome regulations on internal and cross-border trade and (ii) facilitating transparent circulation of information about market conditions.

Regional physical reserves

Setting up regional physical reserves is not recommended; food-reserve coordination committees should be set up instead to facilitate the use of national reserves to serve regional objectives. The Regional Economic Communities should supervise the food-reserve coordination committees and provide capacity-building training for national officials responsible for managing early-warning and food-security information systems.

Complementary regional actions

1. Regional financial reserves
 - Consideration should be given to establishing regional financial reserves to be managed by a respected independent financial institution. Rules for the disbursement of funds to meet urgent needs would need to be established and strictly adhered to. The Regional Economic Communities should initiate discussion.
 - The New Partnership for Africa's Development should consult potential donors regarding the possibility of establishing a donor-held financial reserve to fund large-scale emergencies.
2. Trade
 - African countries, supported by the New Partnership for Africa's Development and the Regional Economic Communities, should accelerate the establishment of sub-regional and regional trading zones to consolidate benefits from the considerable informal cross-border trade. Enhanced intra-regional trade in food will contribute considerably to stabilizing food supplies in the region.
 - Improvements in communications infrastructure, especially road and railway networks, are urgently needed; establishment of a shared account for infrastructure maintenance and use of regional contractors to service several countries under a single contract are recommended. The New Partnership for Africa's Development and the Regional Economic Communities should develop projects and mobilize resources for this purpose.
 - The use of commodity exchanges to enhance trade in food commodities is still in its infancy in Africa; the Johannesburg Securities Exchange is the exception. Similar exchanges have been established in some other African countries but are not yet fully operational. The Regional Economic Communities should organize capacity-building support for existing exchanges and encourage new exchanges in their communities, with emphasis

on encouraging trade in commodity options as an instrument of food-security policy.

3. Risk insurance

Insurance instruments can in future play a significant role in stimulating production, stabilizing supplies and enhancing trade in food commodities. Crop insurance has not been very successful, but weather-based risk insurance holds considerable promise. The New Partnership for Africa's Development should build on work being undertaken by several institutions, including the World Bank and WFP, on a composite index as a basis for weather-based risk insurance that could provide protection against exceptional food shortages. In collaboration with the Regional Economic Communities, the New Partnership for Africa's Development could seek partners to initiate pilot schemes in interested countries.

DRAFT RESOLUTION FOR CONSIDERATION AT THE THIRD SUMMIT OF THE AFRICAN UNION

The African Union welcomes and endorses in general terms the NEPAD study on Food Reserve Systems in Africa and requests the NEPAD Secretariat to undertake consultations in coordination with the RECs with interested countries and potential partners, and to present a detailed plan of action for the implementation of the recommendations of this study to the Fourth Summit of the African Union for consideration.

I. INTRODUCTION

Food security

“A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.”

Food insecurity

“A situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life. It may be caused by the unavailability of food, insufficient purchasing power, inappropriate distribution, or inadequate use of food at the household level. Food insecurity, poor conditions of health and sanitation, and inappropriate care and feeding practices are the major causes of poor nutritional status. Food insecurity may be chronic, seasonal or transitory.”

Definitions from *The State of Food Insecurity in the World, 2000*. FAO, Rome.

A Food-security concepts and their relevance for Africa

1. Availability

There can be no food security unless adequate food is available. If food supplies are not sufficient to meet the minimum consumption requirements of all people in all places at all times, food insecurity is inevitable. This is particularly applicable at the global level: if world supplies are insufficient, there is no recourse.

i. Self-sufficiency

People who depend on hunting, gathering and fishing for their food have little control over the adequacy of their supplies, being entirely dependent on nature for their food security. People in agricultural societies who produce crops, graze animals and store, process, and preserve foods are able in most years to obtain an adequate supply of food all year round. In these situations people are basically self-sufficient: they obtain their entire food supply from their own production or from the natural environment. If there are no food markets or safety-net schemes, wild foods may be the only source of supply when exceptional weather conditions cause harvests to fall short and pastures to dry up; if wild foods are also scarce, there may be famine.

Development of food markets has historically been a consequence of the growth of towns and cities. Urban dwellers could not grow their own food, so others had to grow surpluses and provide food for the cities. Feeding people in the cities was at first a ruling class responsibility, but as cities and towns grew in number and size a trading class emerged and some farmers began to grow surpluses for regular sale as well as for their own requirements; depending on the degree of risk, public grain reserves were established to provide food security in case of harvest shortfall. When countries pursue a policy of food self-sufficiency today, it means that the national authorities rely entirely on domestic production, internal trade and releases from public stocks to ensure adequate availability of food.

ii. Self-reliance

Countries that secure their food supplies by a combination of domestic production and imports financed with income generated from other sources are considered self-reliant rather than self-sufficient. Although they rely on their own economic resources to ensure that supplies are adequate, they make use of external trade to offset variations in domestic production and are thus able to maintain a stable supply of food with little or no dependence on physical reserves.

The idea that food supplies can be secured by a policy of self-reliance rather than self-sufficiency is quite recent in human history. Globalization of world food markets began in earnest in the era of exploration, but has really developed only in the last century. The process has been characterised by commercialization of food production, diversification of rural economic activity and an exodus from farming. Today, markets around the world are closely linked, farming is an increasingly specialized form of economic activity, most countries export and import food commodities and products as well as other goods and services, and rural people generally rely as much on cash income and market purchases as they do on home production to secure their food supplies. Availability of food is assured by production and by trade; having adequate supplies depends as much on a country's ability to import as on its ability to produce and store staple foods.

Africa is facing a particular challenge in that the processes of urbanization, economic diversification and development of food markets are still at an early stage, yet the policies advocated by those who control the flow of international credit and foreign exchange are often more appropriate to mature economies.

Where urban populations are still relatively small, demand for traders' services, and hence trading capacity, is still quite limited. This was the case in much of Africa until the mid-1980s, so African leaders generally assumed the function of assuring food security for the cities, with food self-sufficiency as a policy goal and cross-border trade under tight control. They also provided various forms of subsidy to encourage enough domestic production of staple cereals to meet foreseeable consumption requirements.

Apart from the external pressures created by World Bank and International Monetary Fund (IMF) structural reform programmes, rapid growth of African cities and monetization of rural economies have created a situation in many countries where food security could now be more efficiently achieved through self-reliance rather than self-sufficiency. But the policies, infrastructure and private marketing services needed for this are not yet in place.

2. Access

Access is a concept that relates to the ease or difficulty that people have in obtaining food from the market. Lack of physical access to food affects people living in locations that are distant from markets or infrequently served by traders, where they are unable to gain access to food if home production falls short because of their distance from available supplies.

Lack of economic access to food affects people whose incomes are too low to allow them to purchase all the food they need for a healthy and active life; a more common term for this is lack of purchasing power. Obviously, when supply is insufficient problems of access will occur. But problems of access may occur even when the overall supply of food is sufficient, because people may not have the purchasing power to acquire the food they need.

In Africa, a high proportion of the population lacks economic access to food: nearly half live below the poverty line of US\$1 per day; 40 percent are estimated to be chronically undernourished. These figures indicate an exceptional need for welfare transfers, in particular food safety-nets, yet national economies are not strong enough to generate the funds to finance such programmes. Thus, while donors urge governments to develop policies and programmes to address the needs of the poor, it is in fact the donors themselves who are likely to be called upon to fund them. In deciding on their course of action, African leaders therefore have to work out solutions that will enjoy the backing of their development partners as well as satisfy their internal political objectives.

B Concerns of African leaders and call for study of food-reserve systems

African leaders' concerns about the recurrent and deepening food crises on the continent include:

- stagnation or decline in agricultural yields among small farmers;
- deterioration of the natural resource base;
- increasing poverty and chronic food insecurity among the rural poor as well as the urban poor;
- increasing incidence of food emergencies associated with recurring natural disasters and conflict; and
- lack of coherence between macro-economic reforms, agricultural sector strategies and programmes, and food-security policies.

Because of their preoccupation with these issues and their determination to achieve the Millennium Development Goals, African Heads of State at the African Union (AU) Summit in Maputo in July 2003 resolved "to ensure the establishment of regional food-reserve systems, including food stocks, linked to Africa's own production, and the development of policies and strategies under the African Union and the regional economic communities, to fight hunger and poverty in Africa". In the same declaration, African leaders also resolved to revitalize the agricultural sector through special policies and strategies and the creation of enabling conditions for private-sector participation, with emphasis on removing constraints to agricultural production and marketing, and to engage in consultations with different stakeholders to promote their participation in all aspects of agriculture and food production.

The New Partnership for Africa's Development (NEPAD) reflects the determination of African leaders to find sustainable solutions to problems caused by adverse climate, civil strife, endemic disease, low productivity, poor agricultural policies and lack of infrastructure; it has been given concrete expression in the NEPAD Comprehensive Africa Agriculture Development Programme (CAADP), which was developed with

the support of the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD) and the World Food Programme (WFP). This study, therefore, forms part of CAADP's core activities.

A project proposal on "Disaster Prevention and Emergency Response to Food Crisis" has been put forward in the framework of the flagship programmes of CAADP. The proposal, developed by WFP in collaboration with NEPAD, was endorsed by the AU Summit in its Declaration on Agriculture and Food Security in Africa, adopted in Maputo in July 2003. It was recognized that a detailed review of experiences would be needed; a multi-partner joint preparation process to develop the proposal was recommended. This study was commissioned by NEPAD in response to that recommendation and was undertaken by a team of consultants coordinated by WFP. The study reviewed experiences with food reserves in eight African countries representing the Sahel (Burkina Faso, Mali and Niger), eastern and southern Africa (Malawi, Tanzania and Zambia) and the Horn of Africa (Ethiopia and Sudan). The Southern Africa Development Community (SADC) and the World Bank conducted a parallel study covering Malawi, Tanzania and Zambia with emphasis on insurance options that could be used to cover risks of supply shortfalls. The findings of this study and of a preliminary report prepared by FAO for its Regional Conference for Africa in March 2004 were taken into consideration in finalizing the NEPAD study. Governments, principal donors, United Nations agencies and non-governmental organizations (NGOs) have been consulted. The country reports are available in English at the NEPAD secretariat.

II. FOOD INSECURITY IN AFRICA

A Trends over the last two decades

1. Food supply and demand balances

Agricultural production on the African continent is virtually all rainfed; only 7 percent of arable land is irrigated. As a result, fluctuations in rainfall can cause large variations in food production. Recurring widespread droughts appear to be on the increase. Floods and pests also frequently destroy crops and stored grain, even though the impacts tend to be more localized.

Variations in production can occur as farmers respond to economic incentives, producing more when prices of inputs are low and prices of harvested crops are high, and less when prices are not so favourable. Production levels can also be affected by factors such as epidemics among able-bodied adults or civil conflict, which are having profound effects in some parts of the continent. Table 1 shows slow but steady increases in cereal production in all sub-regions over the past four decades, with average annual growth rates of about 2.5 percent in all sub-regions except for the 1.6 percent in southern Africa. But all sub-regions have experienced high variability in cereal production performance since 1961, as shown in Graph 1.¹

¹ Sub-regional groupings are those used by FAO in its annual publication *The State of Food Insecurity in the World*, with the exception that Chad is included with West Africa rather than Central Africa, and South Africa is included in the datasets for cereal production and per capital dietary energy supply.

	1965	1970	1975	1980	1985	1990	1995	2000
	million mt							
Central Africa	1.3	1.5	1.8	1.9	2.2	2.5	2.9	3.2
Eastern Africa	10.2	12.4	13.9	15.6	15.8	18.0	21.8	22.7
North Africa	11.8	14.7	16.3	15.0	18.0	24.5	27.3	26.6
Southern Africa ¹	12.2	16.3	20.8	22.4	19.2	22.1	22.1	22.5
West Africa	15.0	16.9	17.2	16.7	23.3	31.2	36.8	38.9

¹Includes South Africa.

Source: FAOSTAT data, 2004.

Although there has been a trend of increase in total agricultural production since 1961, per capita dietary energy supplies (DES) have remained stagnant in all regions except North Africa and to a lesser extent West Africa. Base per capita food availability was between 1,900 kcal and 2,200 kcal per day in 1965, but the range for all sub-regions except North Africa now falls between 2,000 kcal and 2,400 kcal (see Table 2A). Per capita availability has increased by more than 10 percent in only 25 of the 51 African countries reviewed for this report; in 15 countries there has been an absolute decline (see Table 2B). These trends help to explain why the proportion of undernourished people is so high in all sub-regions of Africa except North and West Africa (see Table 3).

Graph 1

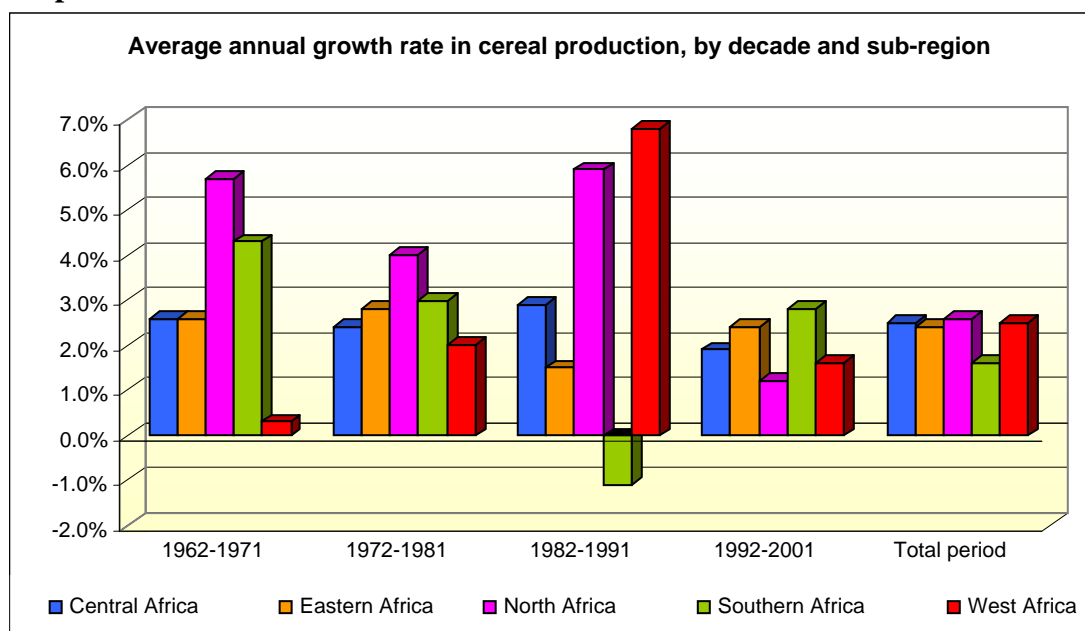


Table 2A. DES PER CAPITA, RANGE AND MEAN, 1964–2001, THREE-YEAR AVERAGES CENTRED ON MIDDLE YEAR, BY SUB-REGION									
	Change between 1965 and 2000	1965	1970	1975	1980	1985	1990	1995	2000
	%	kcal							
Central Africa	2								
High		2 257	2 313	2 401	2 425	2 573	2 460	2 480	2 580
Low		2 006	2 044	1 908	2 095	1 863	1 870	1 828	1 566
Mean		2 133	2 191	2 245	2 242	2 206	2 176	2 107	2 170
Eastern Africa	3								
High		2 255	2 387	2 388	2 287	2 287	2 352	2 369	2 433
Low		1 606	1 679	1 561	1 722	1 698	1 686	1 655	1 609
Mean		1 923	1 968	1 981	2 036	1 996	1 976	1 937	1 991
North Africa	33								
High		2 290	2 475	3 285	3 451	3 289	3 274	3 285	3 366
Low		1 701	1 818	2 093	2 184	2 093	2 162	2 331	2 290
Mean		2 056	2 249	2 545	2 792	2 842	2 947	3 001	3 047
Southern Africa¹	6								
High		2 752	2 759	2 837	2 819	2 840	2 874	2 860	2 894
Low		1 930	1 908	1 931	1 903	1 798	1 729	1 728	1 900
Mean		2 187	2 246	2 288	2 314	2 263	2 231	2 230	2 316
West Africa	13								
High		2 511	2 512	2 513	2 826	2 915	3 002	3 133	3 295
Low		1 697	1 721	1 659	1 639	1 660	1 737	1 915	1 928
Mean		2 103	2 115	2 045	2 101	2 204	2 282	2 354	2 426

¹Includes South Africa.

Source: FAOSTAT data, 2004.

Cape Verde	194	Gabon	129	Cameroon	109	Zimbabwe	97
Algeria	174	Benin	129	Côte d'Ivoire	107	Malawi	97
Libyan Arab	169	Tunisia	128	Ethiopia ¹	106	Angola	96
Jamhiriya		Nigeria	128	Uganda	105	Chad	94
Egypt	147	Guinea-Bissau	126	South Africa	105	Sierra Leone	94
Mauritania	136	Mauritius	126	Guinea	104	Kenya	93
Seychelles	135	Sudan	125	Rwanda	103	Eritrea ¹	92
Djibouti	135	Namibia	122	Congo,	103	Central	92
Burkina Faso	134	Lesotho	119	Republic of		African Rep.	
Morocco	132	Swaziland	118	The Gambia	102	Senegal	91
Ghana	130	Mali	118	Mozambique	101	Zambia	90
		Niger	117	Togo	100	Comoros	90
		Tanzania, United	114			Liberia	90
		Rep.				Madagascar	87
		Sao Tome and	113			Burundi	75
		Principe				Congo, Dem	69
		Botswana	111			Rep.	

¹ Per capita DES for Ethiopia and Eritrea is assumed to be the same for both countries for the period prior to 1994.
Source: FAOSTAT data, 2004.

Table 3. PREVALENCE OF UNDERNOURISHMENT IN AFRICA, 1999–2001 (AVERAGE)							
Sub-region	Total pop.	No. under-nourished	Share under-nourished	Average daily per capita DES	Minimum daily energy requirement	Daily per capita energy deficit of under-nourished	Starchy staples as share of total
	million	million	(%)		kcal		median value, %
Central Africa	81.7	47.6	58	2 170	1 800–1 850	160–380	58
Eastern Africa	209.5	81.3	39	1 991	1 750–1 840	240–410	54
Southern Africa ¹	89.2	36.8	41	2 264	1 730–1 900	180–420	63
West Africa	222.6	32.7	15	2 426	1 790–1 850	210–390	66
SUB-SAHARA AFRICA, TOTAL	603.0	198.4	33				60
North Africa	142.8	6.1	4	3 047	1 830–1 900	130–210	60
AFRICA, TOTAL	745.8	204.5	27				60

¹Excludes South Africa.

Notes and sources: Data for minimum energy requirement and daily per capita energy deficit is for 1996–1998. Source: *The State of Food Insecurity in the World 2000*. FAO, 2002. All other data is for 1999–2001. Sources: FAOSTAT data, 2004 for average daily per capita DES; *The State of Food Insecurity in the World 2003*, FAO, 2003 for all other columns.

2. The role of trade, stocks and food aid in covering food-security requirements

Graphs 2–5 show the contributions of production, stocks and commercial imports to food availability over the last decade compared with the contribution of food aid for each sub-region in sub-Saharan Africa. The data underlying these graphs confirm the growing importance of trade in protecting the food security of Africa’s population and support an approach to food-reserve policies that largely limits the maintenance of physical stocks to the amount needed to maintain supply flows until imports arrive or domestic supplies are mobilized.

The graphs reveal significant differences among the sub-regions. Sharp fluctuations in supply are particularly pronounced in Eastern and Southern Africa; significant overall growth is evident only in West Africa. The effect of these differences on food use is shown in Table 4, which indicates that per capita consumption of cereals remained relatively unchanged throughout the 1990s in all sub-regions except West Africa.

Table 4. UTILIZATION OF CEREALS AND CONTRIBUTION OF FOOD AID, SUB-SAHARAN AFRICA BY SUB-REGION, 1990/91–2002/03						
	1990/91 to 2001/02 (share of total use)	1990/91 to 1992/93 (avge)	1993/94 to 1995/96 (avge)	1996/97 to 1998/99 (avge)	2000/01 to 2001/02 (avge)	2002/03 (prov.)
Central Africa	%	thousand tons				
Non-food use	24	963	944	1 001	1 010	1 007
Food use (excl. food aid)	74	2 641	2 703	3 151	3 366	3 362
Food aid	2	84	80	27	77	113
TOTAL UTILIZATION		3 688	3 727	4 179	4 453	4 482
		kg per year				
Per capita food use		46	45	47	49	48
Eastern Africa	%	thousand tons				
Non-food use	27	6 813	6 965	9 849	9 390	7 616
Food use (excl. food aid)	68	16 563	17 440	21 311	22 688	23 048
Food aid	5	1 490	1 344	1 050	1 614	2 400
TOTAL UTILIZATION		24 866	15 749	32 210	32 691	33 064
		kg per year				
Per capita food use		109	104	115	115	115
Southern Africa	%	thousand tons				
Non-food use	24	3 973	3 395	2 792	2 878	2 620
Food use (excl. food aid)	70	7 280	8 593	10 058	10 721	10 321
Food aid	6	1 545	899	445	399	886
TOTAL UTILIZATION		12 799	12 887	13 295	13 998	13 827
		kg per year				
Per capita food use		125	123	122	125	124

West Africa	%	thousand tons				
Non-food use	26	10 026	10 894	11 389	13 877	14 870
Food use (excl. food aid)	73	27 472	31 444	33 680	37 461	40 339
Food aid	1	766	533	437	423	350
TOTAL UTILIZATION		38 264	42 871	45 505	51 761	55 559
		kg per year				
Per capita food use		152	160	158	164	168

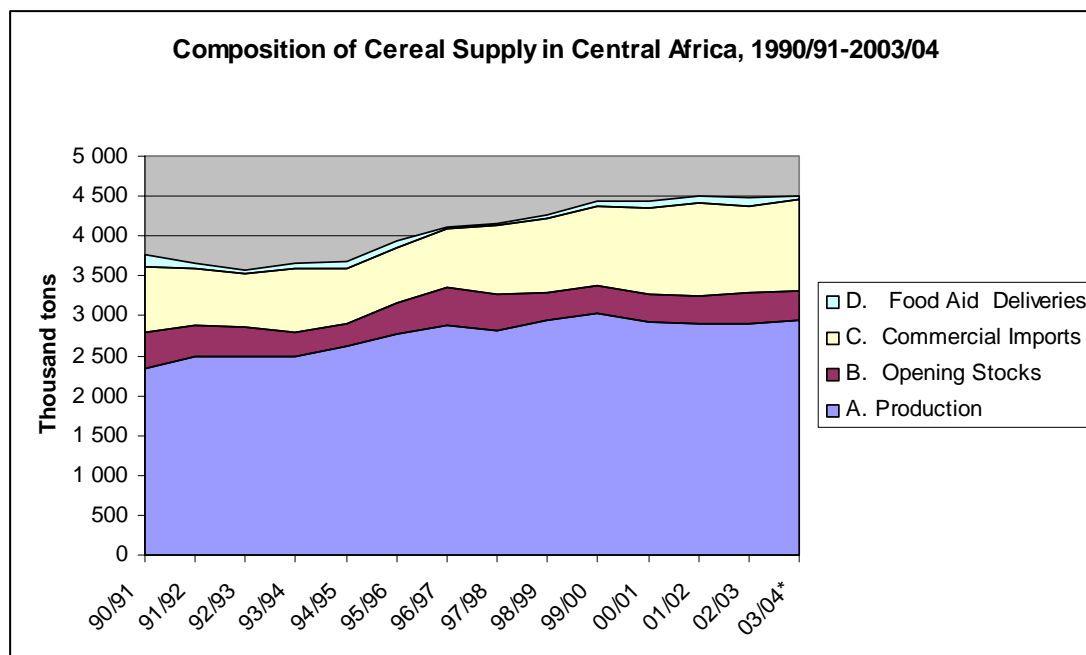
Notes: Although per capita food use of cereals in Central Africa is significantly lower than in other sub-regions, per capita food use of other starchy staples, mainly roots and tubers (not shown here), is significantly higher.

Source: FAO Global Information and Early Warning System (GIEWS)

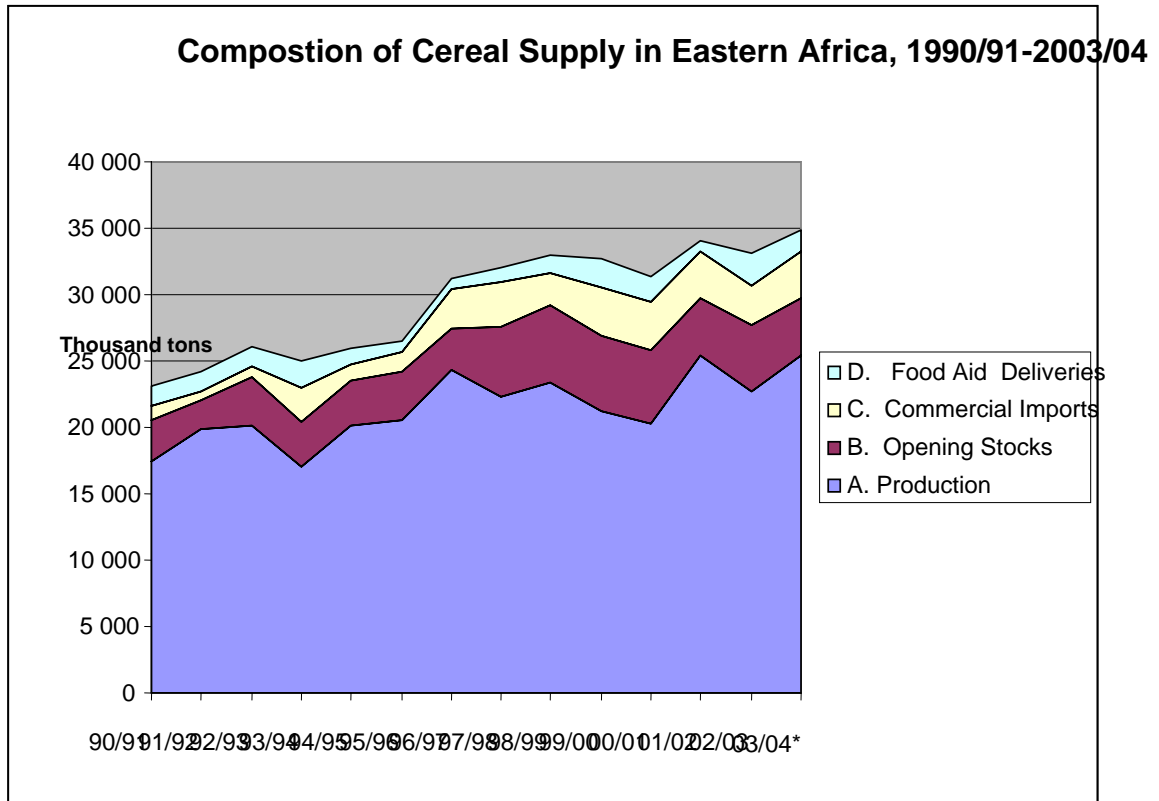
During the 1990s, food aid represented only a small share of total cereal use in all sub-regions; it was most important in eastern and southern Africa, where quantities delivered represented about 5 percent of total use, or 7 percent of food use in eastern Africa, and 6 percent of total use or 9 percent of food use in southern Africa. In both sub-regions, food aid deliveries tended to vary with the fluctuations in production shown in the graphs.

Graphs 2–5 COMPOSITION OF CEREAL SUPPLY IN SUB-SAHARAN AFRICA, BY SUB-REGION, 1990/91–2003/04 (forecast)

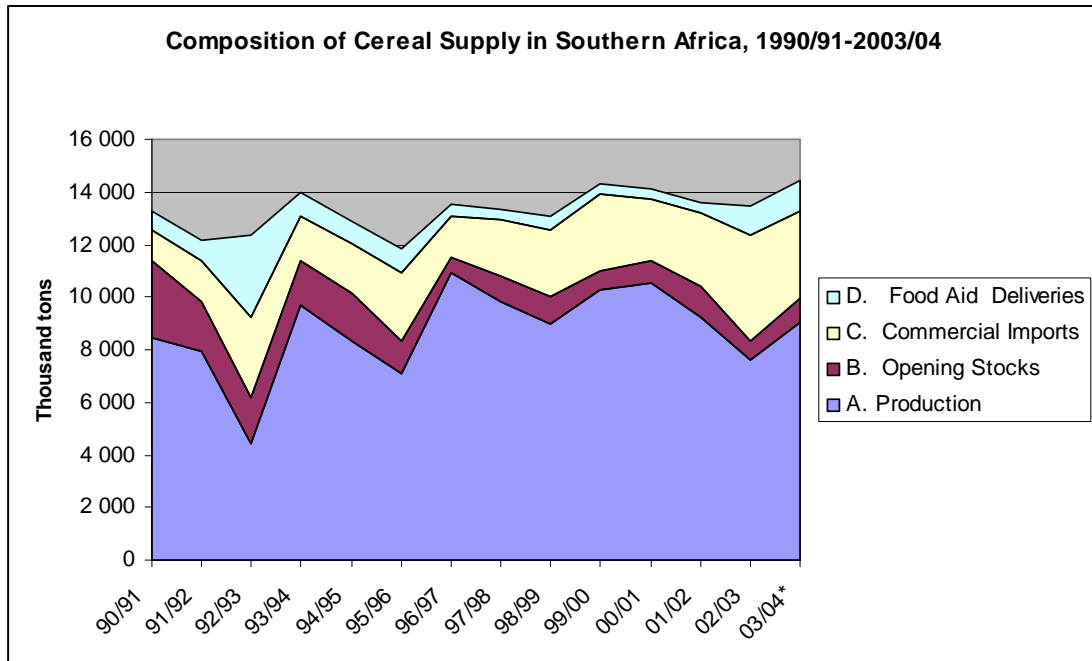
Graph 2



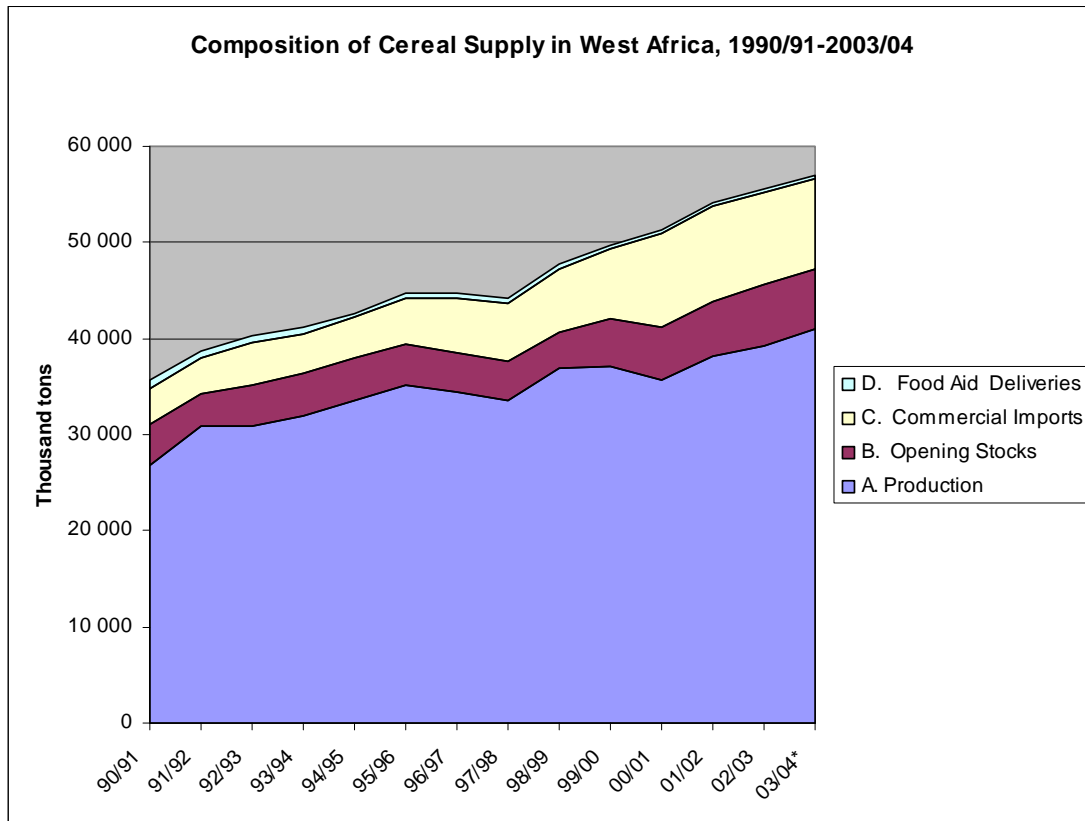
Graph 3



Graph 4



Graph 5



B Deepening food-security crisis

1. Incidence of emergencies

The estimated number of people facing severe food shortages in Africa climbed to about 40 million in 2002 and 2003 – about 6.5 percent of the region’s population – as a consequence of a combination of rapid population growth, adverse weather, drought and declining productivity in some areas, continuing civil strife in several countries and the effects of HIV/AIDS and economic problems in southern Africa. This compares to an average of approximately 23 million in the preceding three years (see Table 5).

The growing numbers of food-insecure people, the relative frequency of natural disasters that compound the chronic nature of the phenomenon and the severity of food emergencies when they arise are the reasons why African governments wish to revisit the issue of emergency food reserves. The difference in magnitude of chronic food insecurity versus temporary food insecurity should be kept in mind, however. As explained in the following section, the number of chronically food-insecure people is ten times greater than the number affected by food emergencies in a bad year. The main reason why emergency needs create a greater sense of urgency than chronic needs is that the daily per capita food deficits of affected people are often large and potentially life-threatening, whereas the smaller food deficits of the chronically hungry are not life-threatening and the negative consequences for long-term economic growth are not immediately evident.

Acute food emergencies usually entail DES deficits in excess of 400 kcal per capita per day; the diets of affected people are likely to be short of cereals and other starchy staples as well as other essential foods. For the purpose of targeting, all people with DES deficits greater than 400 kcal per day should qualify for emergency food aid in view of the acuteness of the food shortage they face and the relevance of staple cereals to address their food needs.

Table 5 AFRICAN COUNTRIES FACING SEVERE FOOD SHORTAGES AND APPROXIMATE NUMBER OF AFFECTED PEOPLE, 1999–2003					
Central Africa	Reasons, 1999	Reasons, 2000	Reasons, 2001	Reasons, 2002	Reasons, 2003
Cameroon	Crop failure			Crop failure	
Central African Rep.				Civil strife	Civil strife
Chad	N/A	N/A	N/A		
Congo, Dem. Rep.	Civil strife	Civil strife	Civil strife	Civil strife	Civil strife
Congo, Rep. of	Civil strife	Civil strife	Civil strife	Civil strife	Civil strife
Gabon	Refugees				
Approximate number of affected people (thousand)					
	2 075	2 300	2 450	2 750	2 850
Eastern Africa	Reasons, 1999	Reasons, 2000	Reasons, 2001	Reasons, 2002	Reasons, 2003
Burundi	Civil strife	Civil strife	Civil strife	Civil strife	Civil strife
Djibouti		Drought	Drought	Drought	Drought
Eritrea	War	War, drought	War, drought	War, drought	War, drought
Ethiopia	Drought, war	Drought, war	Drought, war	Drought, war	Drought, war
Kenya	Drought, refugees	Drought, refugees	Drought, refugees	Drought, refugees	Drought, refugees
Rwanda	IDPs, returnees	IDPs, returnees		IDPs, refugees	IDPs, refugees
Somalia	Drought, civil strife	Drought, civil strife	Drought, civil strife	Drought, civil strife	Drought, civil strife
Sudan	Civil strife	Civil strife	Civil strife	Civil strife; drought	Civil strife; drought
Tanzania	Drought in parts	Drought in parts	Drought in parts, refugees	Drought in parts, refugees	Drought in parts, refugees
Uganda	Civil strife	Civil strife	Civil strife	Civil strife	Civil strife
Approximate number of affected people (thousand)					
	12 200	20 650	13 525	19 200	24 600
Southern Africa					
Angola	Civil strife	Civil strife	Civil strife	Civil strife	Civil strife
Lesotho				Adverse weather	Drought, frost
Madagascar		Floods, cyclones		Drought, economic problems	Drought, economic problems
Malawi				Adverse weather	
Mozambique	Drought in parts	Floods, cyclones	Drought in parts	Drought in parts	Adverse weather
Swaziland				Drought	Drought
Zambia			Adverse weather	Adverse weather	
Zimbabwe				Drought, economic disruption	Drought, economic disruption
Approximate number of affected people (thousand)					
Southern Africa	1 825	2 350	4 425	16 700	9 500
West Africa					
Cape Verde				Drought	Drought
Côte d'Ivoire	Refugees	Refugees	Refugees	Civil strife	Civil strife
Gambia	Drought			Drought	Drought
Guinea	Refugees	Refugees	Refugees	Refugees	Refugees
Guinea-Bissau	Civil strife				
Liberia	Civil strife	Civil strife	Civil strife	Civil strife	Civil strife
Mauritania	Drought			Drought	Drought
Sierra Leone	Civil strife	Civil strife	Civil strife	Civil strife	Civil strife
Approximate number of affected people (thousand)					
West Africa	2 600	2 500	2 600	2 150	1 950
Sub-Saharan Africa, total	Approximate number of affected people (thousand)				
	18 700	27 800	23 000	40 800	38 900

* Internally displaced persons

Notes: This table shows the number of people requiring external food assistance in countries classified as those facing food emergencies that do not have sufficient capacity to deal with the emergency alone.

Food emergencies may be declared in the event of natural disasters, conflict or economic problems. Drought, floods, frost, pest attacks and poor or excessive rains can all lead to sharp declines in agricultural productivity and losses of stored crops, and create temporary food shortages for both farmers and urban consumers. War and civil strife create temporary food insecurity for IDPs and refugees while the conflicts are in progress; in the aftermath of conflict, IDPs and returnees require temporary assistance until their livelihood systems can be restored. Economic problems and disruptions cause loss of productive capacity and consequent loss of purchasing power.

In many emergency-prone countries in Africa, natural or man-made disasters recur in a context where the food-security situation is already fragile; past emergencies may have a cumulative negative impact for a significant portion of the population. Often it is the interplay of several factors and not only a single disastrous event that creates the emergency. At present, there are no internationally agreed criteria for defining the causes of declared humanitarian emergencies other than the general ones mentioned above. Because of this, the attribution of reasons for the food emergencies listed in this table should be regarded as indicative only.

The numbers given for people affected by these emergencies should also be treated with caution. The numbers probably reflect the size of the affected population at a given time, but the period during which an affected person may require help can vary from a few days or weeks to a whole year, depending on the nature and severity of the emergency. Estimates of food aid requirements in an emergency situation are prepared on the basis of (i) the number of people affected, (ii) the length of time for which assistance is needed and (iii) the magnitude and type of the food deficit to be covered. Source: FAO/GIEWS; internal communication based on qualitative information gleaned by GIEWS analysts from government sources, WFP assessments and emergency operation plans, United Nations appeals and United Nations reports on nutrition situations of refugees and displaced populations, among others.

2. Incidence of chronic vulnerability and undernourishment

Many rural inhabitants live in isolated areas with poor market access, as shown in Table 6, even where there is good integration between relatively large primary and secondary markets. This helps to explain why per capita availability of food in countries with high prevalence of undernourishment is usually barely above the average minimum requirement and the food deficits of those who are chronically undernourished are relatively large (see Table 3). It means that the food-security situation for many people in these countries is continuously precarious and thus an issue of great political importance for their elected leaders. Chronic food insecurity is, moreover, magnified by every natural disaster and further exacerbated by the devastating impact of HIV/AIDS on rural households and communities in many parts of Africa. People rendered landless or displaced as a result of civil conflict add to the number of the chronically food-insecure.

FAO estimates that for Africa as a whole about 200 million people – 28 percent – are chronically undernourished. For these chronically undernourished people food deficits of 100, 200 or 300 kcal per day are common; these food deficits are more likely to represent lack of dietary diversity than shortage of starchy staples. The appropriate response in such cases is safety-net programmes, including food aid for development, that provide a basket of nutritionally balanced foods or that support community-based initiatives enabling food-insecure people to obtain these foods through their own efforts.

Table 6 INDICATORS OF DEGREE OF ACCESS TO MARKETS IN AFRICA, BY SUB-REGION					
Sub-regions	Degree of poverty and undernourishment		Degree of market development, based on access of rural people to infrastructure		
	Share food-insecure, 2000	GNP ¹ per capita, 2002	Share of population living in rural areas, 2002	Rural population with poor access to roads and markets, 2002	Number of main telephone lines per 10 00 persons, 2000
	%	US\$	%	%	
Central Africa	58	257	63	43	2
Eastern Africa	39	227	74	35	5
North Africa	4	1 501	47	7	74
Southern Africa	41	402	67	35	13
West Africa	15	309	59	19	7

¹ Gross national product

Notes: Poor access to markets is defined as a distance of more than 5 km from primary or secondary roads, or a distance of more than 40 km from a built-up area observable from the air with an estimated population of at least 2,000 people. Rural population data is based on Landscan 2002, adjusted to conform to United Nations rural and urban shares in population data for 2002. Primary and secondary roads are from the United Nations National Imagery and Mapping Agency vector database. Built-up areas are as published in the Environmental Systems Research Institute (ESRI) *Digital Chart of the World*, 1993. Libya is not included in the data shown in col. 2; Sierra Leone and Sudan are not included in the data shown in col. 5.

Sources:

col. 1: *The State of Food Insecurity in the World, 2003*. FAO, Rome.

cols. 3 and 4: Ataman, E. *GIS-based analysis of population distribution and access to marketing infrastructure, by pixel*. FAO, Rome, work in progress.

cols. 2 and 5: *World Development Indicators Online Database, 2002*. World Bank.

C Options for proactive safety-nets to deal with problems of endemic poverty and hunger as well as temporary emergencies

Very few African countries have formal safety-net policies, yet most countries have put in place one or more of the following mechanisms to respond to the needs of chronically food-insecure people:

- home, school and community gardens;
- school lunch programmes;
- supplementary feeding programmes for women and children, operated by health clinics;
- community food and nutrition programmes;
- targeted food distributions managed by churches and NGOs;
- food-for-work (FFW) schemes;

- food coupon schemes; and
- ration shops.

Many of these programmes have been initiated with external funding. There is a growing recognition among African governments, however, of the need to take over ownership of their safety-net programmes, arising in part out of the Poverty Reduction Strategy Paper (PRSP) formulation process; in some countries it is already beginning to happen.

D Engagement of the international community in global conferences

At the World Food Summit (WFS) in Rome in November 1996, Heads of State and Government, or their representatives, adopted the Rome Declaration on World Food Security and the WFS Plan of Action. They pledged political will and common and national commitment to achieving food security for all and to an ongoing effort to eradicate hunger in all countries, with an immediate view to reducing the number of undernourished people by half no later than 2015. This commitment was reaffirmed in the United Nations Millennium Declaration in 2000 and again at the World Food Summit: *five years later* in Rome in June 2002.

The World Food Summit: *five years later* renewed the global commitment to halve the number of hungry people in the world no later than 2015 and resolved to accelerate implementation of the WFS Plan of Action in a manner consistent with outcomes of other world conferences such as the International Conference on Financing for Development, the United Nations General Assembly Special Sessions on HIV/AIDS in 2001 and on Children in 2002, the 4th Ministerial Conference of the World Trade Organization (WTO) at Doha, and the 2002 World Summit on Sustainable Development.

The participants of the World Food Summit: *five years later* stressed that poverty-reduction and food-security strategies should include measures to increase agricultural productivity, food production and distribution. Recognizing that the vast majority of hungry people and those living in absolute poverty are in rural areas, they acknowledged that halving the number of hungry people would require sustained action to alleviate rural poverty, particularly in sub-Saharan Africa. They welcomed the adoption of NEPAD and the inclusion of agriculture and food security as components of this initiative.

With reference to establishing or strengthening integrated food-security reserve systems in Africa, Heads of State and Government or their representatives at the World Food Summit: *five years later* undertook (i) to increase national and international action to prepare for contingencies and emergencies, and (ii) to improve the effectiveness of early-warning systems and emergency actions through food and non-food based interventions. They stressed that these actions must be integrated into sustainable development efforts involving all stakeholders to achieve sustainable food security and emphasized the importance of developing the scope and coverage of social protection mechanisms, particularly safety-nets for vulnerable and food-insecure households.

The African Union's decision to request the NEPAD secretariat to prepare this report for consideration at its Third Summit in July 2004 is an important step towards implementation of the global commitments cited above.

III. FOOD-SECURITY POLICIES AND STRATEGIES IN AFRICA

A Evolution of agricultural and food-security policies over the last two decades

1. Self-sufficiency versus diversification and self-reliance

There is now general acceptance that in a global economy a strategy based on open borders, market competition and self-reliance is preferable to one of grain monopolies and closed borders. The potential of African agriculture to supply most if not all of the continent's staple food requirements from domestic production nevertheless remains high. Aggressive agricultural policies to realize this potential are therefore still in order.

The change is in the content of agricultural policies and programmes, not the objectives. Under the old self-sufficiency approach, the agriculture sector was managed by central authorities; under the new approach, however, the role of the public sector is to facilitate rather than to control. This means a major reorientation in the outlook, training and skills of civil servants in ministries of agriculture, environment, forestry, irrigation or water, livestock and fisheries. Civil servants with established habits and methods are generally resistant to change, but the combined shortage of public funds for agriculture and rural development, and the scarcity of trained manpower, are forcing many governments to streamline their public services in line with the new orientation.

Features of the new approach include:

- strategic focus on diversification and sustainable management of the natural resource base;
- reorientation of investment in the water sector away from large-scale irrigation structures toward small-scale irrigation;
- outsourcing research and extension services;
- increased use of demand-driven participatory extension methods;
- greater use of development-communication methods to deliver extension messages and market information;
- greater emphasis on service functions of the public sector such as market information, development of small enterprises, standards and quality control, regulatory functions with respect to commercial activities, land tenure and rights to use of natural resources; and
- capacity-building – farmers' field schools, vocational training for rural youth and other landless unemployed workers, and preservation and transfer of traditional technologies and skills.

Investments in other sectors are increasingly recognized as necessary preconditions for the success of agricultural development policies in Africa. Examples include transport and communications infrastructure, health, sanitation and nutrition, education and vocational training.

Continuing inconsistencies between public-sector approaches to formulation and implementation of policies governing the agricultural sector, food security, environment protection, poverty reduction and trade policies are among the most pressing challenges to achieving the food-security objectives that all African leaders desire.

2. Development of domestic agricultural markets

Markets in much of Africa are not yet well developed and are characterized by sharp variations in consumer prices between seasons and from one location to another; in periods of high prices, some markets may not be supplied at all. When production shortfalls occur, large numbers of people who normally depend on their own production for food enter the market as consumers, creating additional demand at a time when supplies are usually scarce. People fall into temporary food insecurity and may become chronically impoverished and food-insecure if they are forced to sell assets or go into debt to cover their basic food needs.

There are several reasons for this: (i) road and rail infrastructures are poorly developed; (ii) physical infrastructures and means of transport are often in a poor state of repair; (iii) the availability of food-storage facilities is frequently limited; (iv) communications between regions are often poor; (v) lack of market information limits the price transparency needed for arbitrage to take place; and (vi) the degree of bureaucratic regulatory control in countries is often excessive and its implementation is not always transparent or predictable, creating another cost for private traders. Where these conditions prevail, underdevelopment of the marketing system is clearly a source of food insecurity.

3. Budget allocations for agriculture

Formal expenditure for agriculture has been steadily declining in Africa for the past two decades. This reflects mainly the decline in public-sector allocations for price and input subsidies, reduced expenditure for salaries of agricultural extension workers and a sharp cut in spending on large-scale infrastructure such as irrigation and warehouses. The overall drop in budget allocations for agriculture may not necessarily reflect reduced commitment to the sector; in fact agriculture may in some cases be better off if there has been a significant reorientation of spending patterns so that available funds are being used more efficiently. A good example is the water sub-sector: it remains a high priority, but government investment programmes have been reoriented away from large-scale investment in dams and irrigation channels towards small-scale earth dams and water-retaining structures with a view to promoting small-scale farming, including market gardening.

The amount allocated for investment in support services and infrastructure in other sectors can be just as important as the amount spent directly on agriculture. Research, transport infrastructure and forestry are examples of sectors where public-sector investments are crucial for the success of agricultural development policies.

4. Food safety-nets and emergency relief

Governments throughout Africa tend to give high priority to food-distribution programmes targeted at chronically food-insecure people and those affected by temporary food emergencies, particularly if the hunger would otherwise be severe, even though such programmes are still funded mainly by food-aid donors. Most of the food-distribution programmes mentioned in Section IIC are managed by a line ministry such as community development, education, health or social services; this means that the programmes are being mainstreamed into the package of public-sector services that Africans are coming to expect from their governments in a liberalized marketing environment, even though there is still dependency on external funds to deliver the full range of promised benefits. Gradual handover of these programmes from donors to national governments can be anticipated as governments assume more and more fiscal responsibility for their social programmes in the framework of their poverty-reduction strategies.

Funding of emergency food relief is still widely regarded as a donor responsibility, but most African governments finance at least part of their national emergency preparedness and response from their own resources. Examples described in more detail elsewhere in this report include early-warning and food-security information systems, financial reserves and emergency-response units charged with responsibility for managing the logistics of emergency food relief. The integrated food-security reserve system that has emerged from this study as a possible model for replication in much of Africa would provide a framework for formulation of comprehensive food safety-net and emergency-relief policies, and a coherent set of policy instruments to implement them.

B Types of physical food reserves found in Africa

1. Price stabilization reserves

i. Buffer stocks

On gaining independence, most African governments maintained the colonial practice of holding buffer stocks of staple cereals to maintain low, stable food prices for civil servants and other urban consumers. This policy was based on the widely held view that small farmers produced enough for their own subsistence and were therefore not dependent on markets for their food security.

In line with this policy, most food markets in sub-Saharan Africa were highly controlled during the 1970s and early 1980s, normally through marketing boards that had monopoly power over domestic purchases and sale of particular cereals and that controlled trade flows through import and export quotas and bans. Cereals were bought and sold at official prices, which in most cases were uniform throughout a country and throughout the year regardless of transport costs and seasonal fluctuations in commodity prices. Farm-gate prices were generally fixed at relatively low levels, consumers were assured of a stable supply of food at prices they could generally afford and farmers were assured of a market for all that they produced. The prices received by farmers, however, were not always high enough to cover their costs. In some instances, farmers were compensated for the low farm-gate prices through a programme of input subsidies that brought their production costs into line with the

prices they received for their crops; in other instances this was not the case, and farmers responded by producing less than they might otherwise have done.

ii. Strategic grain reserves

The food crises of 1972–1974 and 1983–1985 led to the realization that small farmers were not actually food-secure. This prompted many African governments to revisit their food-security policies and strategies to orient them toward ensuring coverage of the food needs of the entire population, not just urban consumers. From the late 1980s, however, most African governments also began adopting IMF/World Bank-sponsored structural adjustment programmes (SAPs), mainly because their previous policies entailing high levels of consumer and producer subsidies had led to unsustainable levels of public expenditure, huge government deficits and high inflation.

Market reforms were undertaken, including (i) liberalization of internal trade to allow the private sector to trade in food commodities and agricultural inputs, (ii) elimination of subsidies and other restrictive practices, and (iii) limitation of state participation in food markets. Buffer stocks were restructured as strategic grain reserves. Although these reserves retained a price-stabilization function, the price band within which they were meant to operate was now to be fixed by market forces rather than government policy. The reserve authority was expected to build up stocks by purchases in the open market when prices were low and to sell back into the open market when prices were high. It was recognized that to maintain the stock in good condition some purchases and some sales would have to be made each year as part of the normal rotation of the stocks. The food-security function, however, was reserved for years when harvests were poor and there was a threat of sudden sharp increases in market prices. In such years, larger withdrawals from the strategic grain reserves were contemplated to maintain market prices at affordable levels while awaiting additional commercial and food aid imports to respond to the shortage of domestic supplies resulting from poor harvests and the increase in market demand created by farm households whose own production was abnormally low.

2. Emergency reserves

i. Emergency food reserves

Providing food relief for people affected by food emergencies has become an increasingly important food-security objective for most African governments over the past two decades. In order to ensure sufficient stocks to cover relief needs while waiting for emergency food aid, a number of countries have established small emergency food reserves, with donor support, which can be built up by local purchase or with imported food aid. They are drawn upon by public and private relief agencies and replenished by the agencies themselves or by donors as soon as additional supplies become available. Although the reserve managers buy and sell in local cereal markets from time to time to rotate stocks, they do so without any price-stabilization objective and are meant to behave like any other private trader. Access to these reserves by relief agencies is granted on a loan basis for repayment in kind; operational costs are borne by the client or by donors.

ii. Food-security reserves

Food insecurity and hunger are a constant threat to the livelihoods of millions of Africans trapped in a vicious cycle of poverty and vulnerability. The causes of chronic food insecurity include (i) frequent droughts and floods, (ii) civil strife, which has displaced people from their food-production and income-generating activities, (iii) poor technologies and low productivity, (iv) lack of appropriate government food-security policies and strategies, and (v) poor marketing strategies and infrastructure. Superimposed on this is the HIV/AIDS pandemic with its devastating impact on short-term and long-term food security in many sub-Saharan countries.

Providing safety-nets for people affected by chronic food insecurity is emerging as a policy objective, particularly in countries where work on poverty reduction strategies is well advanced. Although the need for such safety-nets is becoming more and more evident, links between safety-net programmes and food-security reserves have yet to be made. In countries where there is a chronic need for food relief, emergency food reserves could be transformed gradually into food-security reserves that support all relief distributions, not just those that respond to a temporary emergency. Such a transformation is hampered by the fact that donor aid policies may prevent emergency reserves that depend on donor funding from responding to needs other than those directly attributable to an emergency. This restriction has delayed the creation of food-security reserves linked to national safety-net programmes.

Early work on poverty-reduction strategies envisaged that African governments would finance safety-net programmes from national budgets and that food transfers provided under such programmes would be managed through national structures, not through emergency relief programmes. This has not proved realistic from either a management or a funding perspective: countries need a unified food-relief programme flexible enough to respond to the needs of the chronically food-insecure every year and to expand to meet exceptional requirements of the temporarily food-insecure when emergencies occur.

3. Private stocks

i. Farmers' stocks

There are various traditional on-farm storage technologies for storing grain and other staple food crops for home consumption, many of which may have fallen into disuse as a result of commercialization of grain production and government involvement in purchasing and storing harvest surpluses in the 1970s and early 1980s. There is now renewed interest in promoting some of them, however, because they are less costly and in some instances less subject to loss than modern storage technologies, especially if the latter are poorly managed and maintained. Increased use of such traditional storage technologies would positively impact on household food security at the farmer level.

In Zambia, a new instrument is being piloted that allows farmers to store grain in approved local warehouses for sale later in the marketing year and obtain immediate post-harvest credit on the basis of their warehouse receipts. At present, they can obtain bank finance for about 60 percent of the estimated value of the stored grain. This approach has met with some success, although problems regarding certification of the warehouses remain. In the Sahel, communities in drought-prone areas have

experimented with the use of cereal banks whereby farmers deposit their grain in communal stores where they are held for future sale at a favourable price.

Farmers' stocks are not likely to contribute much to a national food-security reserve that may have to be carried over for several years, because farmers generally do not hold their stocks for such long periods. These stocks can nevertheless make an important contribution to market stability and probably merit more policy attention than they have received.

ii. Traders' inventories

Commercial traders hold inventories sufficient to cover anticipated market demand. The danger of speculative hoarding exists in small markets where there are few traders and there is collusion among them, but as markets expand competition increases and this danger gradually disappears. Traders will use commercial imports to build up inventories if they foresee a shortfall in domestic production, providing their ability to operate in international commodity markets is not restricted. In most circumstances, action by traders in a well integrated marketing environment will be sufficient to maintain market stability without government intervention.

The growth of small-scale private processing, wholesaling and retailing in the staple food sector in Africa increases the capacity of markets to maintain stable inter-seasonal supplies. Following the withdrawal of government agencies from the grain trade, private operators have begun to offer local milling services; they also buy and mill their own grain and repackage flour and meal in small quantities for retail consumers. Their inventories of bulk and processed cereals constitute an important and growing component of national reserves.

C. Trade-based food-security strategies emerging in Africa

1. Credit-guarantee mechanisms to facilitate intra-regional trade in food commodities

Given the time it takes for food to get from producer to consumer, traders must finance food purchases from their own resources or by credit. If import financing is based on letters of credit, a local bank must be willing to provide a line of credit to the prospective importer; the importer can use it to open a letter of credit in favour of the seller; an international bank must then confirm the letter of credit. A constraint for African importers arises because few international banks have lines of credit with local African banks, and most of them impose credit ceilings for the importing country and the local bank. In African countries, credit insurance schemes to cover such risks hardly exist, although they are commonly available in many non-African supplying countries. International confirmation of a letter of credit is thus not always easy to obtain, even if the local importer has good credit and is prepared to pay the local interest rates, which can be very high.

Credit constraints are a major obstacle to intra-regional grain trade. Some buyers in Africa are able to obtain credit to finance food imports; they usually seek an international loan because the conditions are more favourable; such importers can borrow outright from an international bank, often backed by a government guarantee. In most cases either the buyer or the supplier has to arrange some other form of

finance. This is largely ad hoc, however, and based on relationships rather than rules. The cost of obtaining such credit guarantees is often high, because experiences with credit sales in the region have not been uniformly positive.

Two mechanisms that offer potential for overcoming this constraint are described below.

- Several sub-Saharan African countries use warehouse-receipt finance to import wheat, maize, rice and sugar. This practice is generally used by international traders or bankers who have an office in the importing country; they cover the credit requirements of food processors from import of the raw product until sale of the processed product by keeping control over the physical inventory. The main bottlenecks are linked to warehouse infrastructure, the legal and regulatory environment, availability of appropriate insurance coverage and management skills.
- Although intra-regional grain trade is still costly compared to commercial imports from major international exporters, there is potential for expansion as banks in the region become familiar with credit mechanisms for financing food imports and credit insurance becomes more widely available. The African Trade Insurance Agency, a new World Bank-created sovereign risk insurer, is an example of the kind of innovation that will be needed in Africa's financial markets to enable traders to take full advantage of the region's potential for expanding intra-regional trade in food staples.

2. Donor-funded food aid procurement through triangular transactions and purchases in local markets

WFP sources its food requirements through in-kind contributions and cash. In-kind contributions by donors must be imported, but cash contributions can be used for either international or local purchases. The extent to which food aid commodities can be purchased locally depends on the availability of surpluses and of donors' cash contributions for such purchases. Most food aid donors encourage local and regional purchase, because it contributes to local economies and production. In Uganda, for example, WFP purchases 80 percent of its food aid requirements locally. Food aid donors must use available resources as efficiently as possible, however, which limits the use of local and regional surpluses to mitigate food crises to locations where they can be supplied competitively. It is often the management costs associated with local procurement in surplus-producing regions where there is little or no market infrastructure that are prohibitive, not the cost of the food itself.

Possibilities exist for making greater use of intra-regional trade to source food aid, particularly in Eastern and Southern Africa, where a number of countries systematically produce local surpluses of staple cereals. Surplus production in eastern Sudan, for example, would be adequate to meet the food deficits in southern and western Sudan, but lack of infrastructure in western Sudan and insecurity in the south have prevented supply of these markets from local production at competitive prices. Northern Ethiopia, which is chronically food insecure, could however be supplied with food aid procured in eastern Sudan, given appropriate coordination.

Progress in developing regional and sub-regional financial markets and improving the quality of market information and transport infrastructure should (i) improve prospects for increasing the volume of intra-regional trade handled by commercial traders and food aid agencies, (ii) contribute to regional market integration and (iii) help to maintain food prices at affordable levels, even in periods of local production shortfall.

3. Financial reserves

Financial reserves can be held by the food-reserve authority, by the national treasury or by donors. Sometimes funds established as operating accounts to cover operational costs of managing a physical reserve are referred to as financial reserves. But financial reserves that are used instead of physical reserves are meant to be set aside and drawn upon only in emergencies that create an exceptional and urgent need for food imports. Such a reserve fund can take the form of a reserve account with an accredited financial institution, or it can exist as a commitment to respect a call for funds provided criteria for use of the reserve have been met.

In Africa, most countries with physical reserves have also established some form of financial reserve, held either by the reserve authority or as an obligation binding the national treasury to release public funds on call. There are as yet no examples of financial food-security reserves that operate at regional level, but consideration could be given to establishing such reserves, for example (i) by establishing a regional financial reserve from contributions of African governments and external partners, to be managed by an independent regional financial institution and subject to agreed rules for the disbursement of funds, or (ii) by establishing a regional financial reserve comprised solely of donor contributions, to be owned and managed by the donor contributors for funding relief operations during large-scale emergencies.

4. Risk-management instruments

i. Options trading in commodity markets

Commodity exchanges offer risk-management instruments in the form of futures contracts and options. A futures contract is an agreement to purchase or sell a commodity on a specified future date at a pre-set price: futures are used to hedge against price risks by locking in the price at which the commodity will be traded on the specified date. Options, established in the mid-1980s, grant the right without obligation to purchase or sell a commodity on or before a specified date at a pre-set price; options are used to limit the size of losses from unfavourable future movements in commodity prices and can offer an opportunity to take advantage of favourable price movements.

The two major benefits of risk-management instruments are greater marketing flexibility and greater price security in a budget year or over a period of several years. There is growing recognition in Africa that commodity markets, with or without futures exchanges, can be a good way to manage the risk of increased price volatility associated with market liberalization. But the contract must be developed with great care: if it goes wrong, the exchange is not likely to have a second chance for many years.

Africa's most active and important commodity exchange is the Johannesburg Securities Exchange (JSE) in South Africa, which took over the South African Futures Exchange (SAFEX) in August 2001. JSE traded 34 million futures and option contracts in 2001 – 1 million agricultural contracts and 33 million financial contracts, including single-stock contracts – making it the world's 13th largest exchange. The Agricultural Products Division of JSE trades futures and options on white and yellow maize, milling wheat for bread, sunflower seeds and soya beans.

Maize and wheat contracts have been traded on new exchanges in Zambia and Zimbabwe. Farmers established the Zimbabwe Agricultural Commodity Exchange (ZIMACE) in 1994 in response to the gradual liberalization of state-controlled agricultural marketing. ZIMACE conducted spot and forward transactions particularly for maize, and to a lesser extent for wheat. Recent policy reversals, however, have halted operations. The Zambia Agricultural Commodity Exchange (ZACE), also founded in 1994, conducts spot and forward transactions in wheat, maize and other agricultural products; its success led to development of the Kapiri Commodity Exchange in Zambia's Central Province and the Eastern Agricultural Commodity Exchange in Zambia's Eastern Province, both launched in 1997.

The Kenya Agricultural Commodity Exchange (KACE) was set up in Nairobi in 1997 to provide the basic services of a commodity exchange. The products traded are chiefly agricultural – cereals, dairy products and cotton. Exchange initiatives in Morocco, Nigeria and Uganda are still at an early stage of development.

ii. Weather-risk insurance

Another instrument under development is weather-risk insurance. This is a form of crop insurance using degree of exposure to weather risk as the basis for establishing the premiums and compensating buyers against unfavourable weather fluctuations that affect volumes produced rather than against volumes harvested. For example, an insurance product for sale to farmers could be based on a maize production index constructed from weather data recorded at a weather station relevant to the location of the client. At the request of SADC, a study of options for implementing such an instrument has been prepared, using Malawi as an example.

At the macro level, a nationwide maize-production index could form the basis for access to a contingent credit line for the government in the event of food emergencies that put pressure on government budget reserves. This index could be constructed as the weighted average of indices measured at weather stations throughout the country; each station's contribution would be weighted by the corresponding average or expected maize production in that location. There are good prospects that a well designed weather-risk insurance scheme could be reinsured in the global weather-risk insurance market, thus spreading the risk more widely and reducing the cost to African clients.

D. Integrated food-security reserve systems in Africa

A unique multi-partner structure was piloted in Mali in 1981 as part of the structural reform process and subsequently extended to several other Sahelian countries. A counterpart fund was created through monetization of food aid, with the aim of financing a comprehensive programme for restructuring the cereal market. The

integrated food-security reserve system established by Mali comprises a number of elements that enable it to operate efficiently in the context of a liberalized marketing environment, including:

- an early-warning system;
- a market-information system;
- a national security stock of between 30,000 mt and 35,000 mt;
- an emergency intervention unit;
- a joint counterpart fund; and
- a food-security fund.

This system has functioned well and represents a model suitable for replication elsewhere on the continent. It is considered in Mali and the sub-region to be a particularly effective model for coordination between government and development partners. Its efficacy is the result of the informality and flexibility with which the coordination functions are carried out in the Malian administration, among donors and between the two. Although donor funding was initially significant in Mali, 80 percent of the cost is now financed by the government.

IV. PAST AND ONGOING AFRICAN EXPERIENCES WITH FOOD RESERVES

A The Sahel

In the Sahelian countries, establishment and maintenance of food-security reserves stems from events in the early 1970s, when a prolonged drought resulted in a series of disastrous harvests. The seriousness of the situation was compounded by a simultaneous global cereal shortage that led to record price increases on world markets. Because the donor community was able to provide only limited amounts of food aid, many people in the sub-region experienced famine.

In response, governments of drought-prone countries in the sub-region, with substantial donor support, attempted to build up food-security reserves to meet basic needs in years of poor harvest until grain imports could be obtained commercially or in the form of food aid. The reserves were to be managed within the framework of the market operations of existing national cereal boards. It soon became evident, however, that a more targeted approach needed to be devised.

In 1990, the Permanent Inter-State Committee for Drought Control in the Sahel (CILSS) comprised of Burkina Faso, Cape Verde, Chad, the Gambia, Guinea-Bissau, Mali, Mauritania, Niger and Senegal and associated donor partners – the Club du Sahel – adopted a food aid charter that called for (i) integration of food aid into agricultural and rural development policies, (ii) coordination with other types of aid, trade and macro-economic policies, and (iii) integration of food aid into long-term development plans. Since then, food reserves have included a financial component in most countries. In the absence of a serious food crisis in the Sahel in recent years, however, the financial component has been used to help cover food needs of chronically food-insecure people.

There has been a significant shift in the Sahelian countries from generalized food distribution by national cereal boards to food-security reserve systems consisting of three components that accompany physical reserves: (i) food information and early warning, (ii) consultation and coordination with donors and (iii) safety-net interventions. Physical food reserves, where they are still maintained – in Burkina Faso, Chad, Mali, Mauritania and Niger – are at greatly reduced levels and are for emergency relief. The maximum physical stock has generally been set at levels representing no more than three months of anticipated import requirements, an amount sufficient to cover the needs of a limited number of affected people in a poor crop year.

B East Africa

Experiences of countries in East Africa have been varied. Kenya and Sudan have attempted to continue to hold large buffer stocks primarily to stabilize prices, despite the disadvantages described above. Uganda, on the other hand, has traditionally not held stocks and has been quicker to adopt and implement measures to encourage private-sector trade in grain markets.

In Ethiopia, Eritrea and Somalia, recurring drought, conflict and declining agricultural productivity have increased chronic hunger and the frequency and severity of food emergencies; all three are heavily reliant on food aid. In Ethiopia, a model emergency food-security reserve system has evolved to facilitate timely delivery of food for relief distribution. The Ethiopian Food Security Reserve (ESFR) proved its effectiveness on several occasions in the 1990s and in 2002–2003.

During the impending famine in 1994, ESFR responded quickly by releasing 94,000 tons on loan to NGOs and 52,000 tons in free withdrawals to the government relief agency. This helped to mitigate serious food shortages in the northern and southern parts of the country, discouraged people from migrating in search of food and prevented disintegration of their livelihoods. In 1997, EFSR was the only stock on which the Government, WFP and many NGOs could rely for immediate emergency distributions, following failure of the *belg* (spring rainy season) crop because of insufficient rains. EFSR was also the only source of readily available relief food during the drought in 2000 and in 2002–2003, when EFSR stock was recycled 2.5 times in 12 months.

C Southern Africa

In Southern Africa, national buffer stocks provided adequate food security until the prolonged 1983–1985 drought created a food emergency with which they could not cope. Thereafter, the marketing boards were made responsible for maintaining food-security reserves and managing distribution of food relief and food aid in emergencies, as in West Africa in the 1970s. But there was less donor involvement, and the change in policy came at a time when overall economic conditions were creating other pressures for more fundamental reform.

Some governments in southern Africa chose to let state marketing boards continue to hold the reserve on their behalf while competing for business in open markets; others created specialized units to manage the reserves; a few attempted to keep a

combination of physical stocks and cash. Governments generally continued to intervene to varying degrees in grain markets, however, which discouraged full private-sector participation in the grain trade in most countries. Yet governments have been unable to achieve reserve targets because of high costs of procuring, transporting, maintaining and operating grain reserves. Reserves were not linked to safety-net programmes, and releases were often made with a view to satisfying short-term political objectives without regard for longer-term food-security consequences.

In Southern Africa, continued attempts to use strategic grain reserves to stabilize cereal prices have undermined market incentives for private traders to perform normal arbitrage functions that could have satisfied governments' food-security objectives. As a consequence, small farmers who produced surpluses have often been penalized by falling prices and lack of markets, which has led them to reduce plantings in subsequent years, with adverse impacts on overall production and grain availability. Consumers have also faced greater instability in grain markets in terms of available quantities and prices. Experience with strategic grain reserves in this part of Africa has thus been less than satisfactory.

V. LESSONS LEARNED

A Objectives of a food-reserve system

Three possible objectives have been identified for the operation of a food-security reserve system in Africa:

- price stabilization for the benefit of producers and consumers;
- back-up for national safety-net programmes; and
- back-up for emergency-relief programmes.

All three have a role to play in a national food-security policy; fulfilment of these objectives, however, does not necessarily require physical grain reserves, as will be discussed in Section VII. What is important is that national food-security policies create conditions under which all people are assured of access to the food they need at all times and in all places.

B Preconditions for successful operation of physical reserves

Physical food reserves are costly to establish, store, maintain and operate; the bigger the reserve the higher the cost. This is why virtually all sub-Saharan countries that have attempted to keep reserves have found the task so difficult. Maintaining some physical reserves can be justified at this stage of the market development process, but the most important implication of the experiences described above is that physical reserves should be kept to a minimum, based on the country's proximity to international markets. Adequate food-security and trade policies, information systems and infrastructure are also essential.

1. Food-security policy

A food-security policy in which physical reserves can make an effective contribution would need to be formulated with the following considerations in mind.

i. Domestic food production and development of domestic food markets

Given that international trade and food aid cover only a small part of total consumption even in years of poor harvest, most African countries still need to rely on domestic production as the foundation of their food-security policies. Policies and measures that encourage farmers to (i) diversify cropping patterns, (ii) plant drought and pest-resistant varieties, (iii) adopt water-conserving technologies, (iv) maintain soil quality and (v) reduce post-harvest losses through improved on-farm storage practices can all help to increase and stabilize national food supplies.

Large price-stabilization reserves are at best inefficient; at worst they are counterproductive because of their high cost and the tendency of reserve managers to discourage development of domestic food markets. The policy objective of maintaining price stability at affordable prices in national food markets can be achieved by other measures, including:

- promoting local storage, milling and processing facilities;
- improving market information services;
- relaxing cumbersome and arbitrary trade regulations that discourage private operators;
- implementing food-market policies consistently; and
- maintaining transport infrastructures to international standards.

ii. Safety-net programmes

Even if the price-stabilization objective is met, part of the population in most countries will have become so impoverished that households and individuals cannot meet even their most basic needs without help. Poverty-reduction strategies should include safety-net programmes that provide for welfare transfers to food-insecure households and individuals, combined with assistance in finding alternative, more sustainable livelihoods. Safety-net transfers need not involve food; if food transfers are involved, however, it may be desirable to maintain a physical food reserve that would function like the inventories of private traders – ensuring a continuous supply of food to clients, in this case the beneficiaries of the safety-net programme. Such a reserve would need to be financed partly or wholly from public funds.

iii. Emergency food relief

Experience shows that in locations where there is a need to hold physical reserves to back up emergency food relief, success is achieved through effective early-warning systems, financial and physical reserves, clear decision-making and accounting procedures and collaboration between donors, relief agencies and government authorities. Coastal countries with good seaports and countries not subject to sharp fluctuations in food production would have little or no need for such a reserve.

2. Trade policy

International trade policies are implemented mainly by tariffs, quotas, quality controls and embargoes. Most African countries have brought their international trade policies into conformity with World Trade Organization (WTO) agreements, including those that affect the food trade, and no longer restrict food imports to promote domestic agriculture and food self-sufficiency. Some countries, however, still impose controls

on food exports if national food security appears to be threatened by supply shortages. In many cases, import and export trade is still governed by cumbersome regulations and reporting requirements that give government officers ample opportunity to block transactions despite a stated policy of open borders. Such arbitrary public-sector interventions discourage the development of robust food markets and prevent countries from relying on intra-regional trade to complement physical reserves as a way to cover immediate food shortages.

The following represent a minimum package of trade-policy improvements for operating physical food reserves in a manner compatible with stated policies of promotion and development of domestic and regional food markets.

i. Facilitation of cross-border trade

Informal, unrecorded cross-border trade is common in the many natural trading areas on the continent. African governments could create incentives to encourage private traders to operate more freely in such areas by relaxing controls on cross-border trade and ending the current quantitative restrictions and export bans to protect national food security in years of poor production, thus reducing the need to hold decentralized national reserves and the cost of doing so. Acknowledging and promoting this trade would also make it easier to obtain accurate information about the quantities of food commodities moving across national borders, which is essential for sound management of physical food reserves.

ii. Financial reserves

A food-security reserve system should have a cash component, mainly in foreign exchange that could be used to finance unusually high levels of commercial imports in the event of domestic production shortfalls or exceptionally high world market prices. The size of the shortfall required to release foreign exchange from the reserve should be determined in advance and publicized. Income generated by export sales from the physical reserve during surplus production years could be combined with public-sector funds set aside for the reserve up to a predetermined limit; income earned from sales and interest above the limit could be used for development purposes.

iii. Market-based risk management

Trading in commodity options has been identified as a useful instrument for securing food imports ahead of need while retaining the option of not proceeding if the secured quantities are not needed. The feasibility of dealing in options or introducing other market-based risk-management schemes along the lines of those discussed above should be further explored.

3. Information systems/early warning

Development of food markets and greater reliance on them to achieve food security objectives cannot occur unless there is provision for rapid, free flow of information about market conditions throughout a trading zone. Private-sector institutions have the capacity to circulate this information, but public-sector institutions are better placed to gather information and manage databases to a common quality standard so as to lend credibility to the information circulated; in much of Africa, however, such standards are not reached.

Early warning and vulnerability assessment should be integral features of an integrated food-reserve system that backs an emergency preparedness and response programme. Unfortunately, early-warning and food-security systems in many African countries are not performing to the required standard, despite considerable investment. Credible forecasts of an imminent food shortage need to be disseminated in time to arrange food and other imports. Early forecasts of a good harvest would allow exports from existing stock, subject to the size of the minimum food reserve being maintained. Food-security information systems need to provide for regular assessment of final harvest estimates and to project market demand requirements and the number of food-insecure people and their needs in sufficient detail to target safety-net programmes and emergency food relief. Too often, African decision-makers are presented with conflicting information from different sources with no means of knowing which figures to trust, which creates a serious obstacle to achieving food-security objectives and imposes a major constraint on effective management of any form of physical food reserve.

4. Transport, storage and communications infrastructure

Lack of adequate internal transport infrastructure has been identified in the case studies as a serious constraint to development of rural food markets and the smooth functioning of food-distribution programmes, especially in remote areas where many food-insecure people live. The most serious problem is lack of maintenance of existing infrastructure, in some places to the point where rail and road networks are completely dysfunctional; some rural areas are still not adequately served by any form of transport.

Modern storage facilities have been constructed in many locations served by existing transport networks, but maintenance is often poor and recorded losses of stored grain are frequently high. Losses from some forms of traditional storage are reportedly much lower, but the extent to which farmers still use these methods to preserve their grain after harvest is not known, and grain stored in this way is not accounted for when estimates of supply availability are prepared.

Considerable progress has been made in developing communications infrastructures during the past decade. Television and internet access are still found mainly in larger towns and cities, but the rapid spread of cell-phone technology has made possible real-time exchanges of information between even the most remote places and local or national administrative centres. This new technology can (i) facilitate development of market-information systems that are fast enough to be useful to traders, (ii) communicate timely information about evolving emergencies and likely needs to emergency preparedness and response units and food-reserve managers, and (iii) facilitate communication between agency headquarters and field staff managing safety-net and emergency food-distribution programmes. Serious gaps and operational inefficiencies in traditional forms of telecommunications need to be overcome, however, before significant market development can take place.

5. Trained staff and clearly defined decision-making, stock management and accounting procedures

To ensure that physical reserves are operated efficiently and cost-effectively and do not interfere with domestic food markets, reserve managers and private traders need to

be assured that decision-making procedures regarding release and replenishment of stocks, once established, will be strictly adhered to. This is a responsibility of governments, which have in the past frequently intervened in the management of physical reserves in unpredictable and counterproductive ways.

Technical procedures for managing stocks need to be clearly defined and adhered to, including (i) regular quality control and rotation of stocks, (ii) open tendering of releases and procurement, and (iii) recycling of grain towards the end of the marketing season when market supplies are running low and prospects for the forthcoming harvest are becoming clear. Strict accounting procedures need to be put in place; there should be full transparency in the operation of the reserve. Provision must be made for additional training to implement established procedures if staff require it.

6. Adequate funding arrangements

The operational costs of managing a physical reserve correctly are considerable. The reserve authority must be assured of adequate funding to cover operational costs and to finance grain purchases to replenish stocks. In the past, funds have sometimes been provided to cover the cost of grain procurement, but funds to manage stocks in storage have been inadequate and large losses in the value of stored grain have resulted.

C. Size and composition of physical reserves

The main justification for holding physical reserves in Africa today is the limited scope of local markets and the long lead-time required to mobilize exceptional amounts of commercial imports and food aid in an emergency. Emergency food reserves held against this contingency need to be sufficient to cover foreseen demand until food can be procured and shipments arrive – usually two to three months. Safety-net reserves may be small or large depending on the number of people to be served.

Physical reserves may be replenished by imported food aid, or through local purchases once the emergency has passed and production has returned to normal. Local replenishment and normal stock rotations will necessitate some market operations, which must be handled with care to avoid market disruption. If they are managed in the same way as trader inventories, such reserves would represent an expression of demand in food markets and would not interfere with them.

The composition of stocks should as far as possible reflect consumer preferences. In West Africa, stocks now contain a large proportion of maize compared to millet and sorghum, reflecting increased maize consumption in the sub-region. In Ethiopia, the ideal reserve mix is approximately equal proportions of maize, sorghum and wheat; the actual mix depends on what is available from food aid donors. In southern Africa, reserve policies still focus on white maize, though a variety of staples is actually consumed, which should figure more prominently in the future.

D. Complementary role of private stocks and market inventories

Participation of private traders in domestic and international grain markets should be unrestricted. This would encourage private traders to move food throughout a country in response to variations in price and to bring in commercial imports to fill gaps in

years of production shortfall. The more the system relies on traders for food security, the more inventories of physical stocks the traders are likely to keep. These market inventories will not usually be sufficient to cover requirements in exceptionally poor crop years, but they will usually be enough to maintain supply and price stability in normal years. Farmers' stocks held on-farm or in local warehouses constitute another form of physical reserve, whose growth can be encouraged by appropriate policies and technical support.

Like cross-border trade, this is a component of African food-reserve systems about which little is known. Accurate estimates of the size of private stocks and indications of the intentions of traders and farmers regarding the prices at which they are likely to be released form an important part of the information base for decision-making about releases from public stocks, which is currently lacking in most countries.

VI. KEY ISSUES TO BE CONSIDERED

Key issues to be considered are presented below to help guide national or regional authorities in evaluating options for establishing or strengthening a food-security reserve system.

A. Clarity of objectives

1. Food-security policy

A clear food-security policy is a precondition for an effective food-security reserve system. If a physical reserve is contemplated, the support of humanitarian agencies and donors will be required to establish it as back-up to the safety-net programmes or emergency food-relief programmes that they intend to fund. The policy should cover:

- identification of population groups at greatest risk of food insecurity;
- clear measures to address the food needs of food-insecure people;
- assessment of the risks of periodic natural disasters and provision for imports, food aid and emergency relief;
- projections of current and expected contributions of domestic production to food availability and food security; and
- government commitment to measures to create an enabling environment for rural market development, including trade in staple foods.

2. Trade policy

Domestic intra-regional and international trade in food commodities could play larger roles in achieving Africa's food security objectives. To facilitate this trade, there is a need to generate better information on the following:

- the extent of domestic trade in food commodities;
- the extent of informal cross-border trade in staple foods;
- the food-security impact on importing and exporting countries if staple foods are allowed to cross borders without restriction; such movements already take place, but are largely unrecorded;

- the current level of international trade in cereals in Africa, and the extent to which it is undertaken by local traders as opposed to international grain-trading companies; and
- the extent to which credit is available to local food traders, and options for facilitating further access to credit to encourage their greater participation in international transactions.

Existing regulations, standards and border-control measures often hinder cross-border trade, even though the evidence suggests that a proactive policy of fostering cross-border trade in natural trading areas could contribute to deepening food markets and stabilizing supplies and prices through market forces. Clear regulations and standards governing cross-border trade are urgently needed, along with firm government commitments to honour them. The use of trade as an instrument of food-security policy could be facilitated by:

- holding financial reserves to complement or substitute physical reserves;
- trading in commodity options; and
- developing risk-management instruments that would cover the costs of exceptional welfare transfers when a food emergency occurs.

B. Clarity of management and accounting procedures for physical reserves

If a unit exists that could manage a physical reserve, its staff should possess the skills required to maintain the stocks in good condition and keep accurate records of stock movements. If such a unit does not exist, or if a unit exists but does not possess the requisite staff, arrangements should be made for recruitment and training before establishing the physical reserve.

C. Management authority and decision-making procedures for physical reserves

Consideration needs to be given to balancing the roles of politicians and technicians in decision-making and management processes for physical reserves. If the management authority is to be established at a political level, checks and balances must be put in place to ensure that food is not diverted for purposes other than the agreed food-security objectives; all parties must reach a consensus as to decision-making procedures regarding release and replenishment of the reserve.

Operational links between management of the physical reserve and the estimated food-distribution requirements of safety-net and emergency food-relief programmes should be foreseen and clearly defined. A procedure should be envisaged for registering agencies with the right to draw stocks from the reserve in order to prevent private-sector operators without appropriate credentials from making claims on the reserve.

D. Information systems/early warning

Credible, timely information is an essential precondition for effective functioning of a food-security reserve system. Information systems covering market conditions, harvest prospects and food-distribution requirements are operational in many countries and sub-regions of Africa, but most are not performing to the required

standard. An urgent task will be to determine what action needs to be taken to guarantee that the information needed to manage food-security reserves is available.

E. Adequacy of transport, storage and communications infrastructure

The reserve system will often be unable to fulfil its objectives because of insufficient transport, storage and communications infrastructure or lack of maintenance. This will need to be remedied before the system becomes operational.

F. Costs and funding arrangements

Start-up and recurrent costs for managing all public-sector elements of the reserve system must be estimated and sustainable funding secured.

VII. OPTIONS FOR CONSIDERATION

A. Options for national action

1. No reserve

In a well integrated market, price differentials should vary by no more than the cost of storage, handling and transport; changes in base prices in the price-setting markets should be transmitted quickly to outlying markets. Unification of the price-setting process in a well integrated market occurs through a mechanism called arbitrage, whereby private traders always behave in such a way that their expected return from future sales of stored commodities equals the return they could obtain by selling in the present; similarly, their expected return from sale in a distant market equals the return they could obtain by sale in a local market. If the process works, consumers should have uniform, stable prices throughout the year at all points of sale in the market.

Few African countries have achieved this degree of market integration and market development. The option of holding no reserve could be appropriate for some countries, however, particularly coastal countries with easy access to international grain markets and countries with low variability in domestic production.

Some countries with these characteristics do not maintain a reserve, but rely on food aid and trade to cover their food requirements. The food aid is mobilized annually to cover targeted food-distribution programmes for chronically food-insecure people and emergency relief requirements, with no reserve stock as security. Mozambique is an example.

2. Financial reserve

As discussed in Section III.C.3, holding financial rather than physical reserves is another option for countries where the lead-time required to mobilize commercial food imports or food aid is relatively short. The financial reserves do not have to be set aside in a separate fund, but can be established by defining conditions under which a food-security authority can draw foreign exchange from the central reserve bank to finance food imports. This option requires a high degree of transparency in managing and accounting for the financial reserves, because the temptation to allocate funds for purposes other than those originally intended will always be high.

Senegal's successful experience with this option shows that it is feasible for African countries: it has allocated in its budget a sum to respond to food insecurity or natural disaster, rather than maintain a physical stock of food and non-food items for potential relief interventions. It adopted this strategy because of the high costs of maintaining stocks and its relatively easy access to international markets. Senegal's record of crises discouraged capital investment in contingency stocks and favoured a state of readiness based on budget allocations, which are carried forward if not drawn upon.

3. Small emergency-reserve and reserve funds

This option comprises an integrated food-reserve system that is built up round a small physical reserve and used to meet emergency relief needs according to clear operating procedures. Releases from the reserve are usually made to authorized food-distribution agencies, including public-sector relief agencies, donor aid agencies and charitable NGOs. Replenishment may be made through local purchases or imports depending on conditions in local markets, using funds appropriated by the national government or by donors, or a combination of the two.

An integrated food-reserve system also includes financial reserves, an early-warning and food-security information system, collective management mechanisms involving all stakeholders and complementary market-development measures. A food-reserve system that includes all these elements satisfies the preconditions for efficient use of physical reserves, as set out in Section V.B. Implementation of this approach in landlocked Sahelian countries – Burkina Faso, Mali and Niger – has largely achieved food-security objectives, although reliance on donors for funding and physical and financial replenishment is still relatively high and the performance of national early-warning systems as a decision-making tool has varied.

4. Larger food-security reserve and complementary market-development measures

Larger physical reserves could be an option where there is an operational food safety-net programme that requires regular releases of stocks to support food distribution programmes for chronically food-insecure people (see Section IIC for examples of food safety-net mechanisms). This option would have to be accompanied by an effective food-security information system providing regular assessments of the number, locations and identities of households and communities qualifying for the benefits. It would also need to be accompanied by a campaign to improve agricultural productivity and develop domestic food markets, otherwise the reserve policy could achieve short-term food-security objectives at the expense of long-term economic growth and poverty-reduction goals.

There is no operational example of this option in Africa, but the experience of Ethiopia is relevant. In Ethiopia, emergency food relief functions as a safety-net because of the recurring nature of food emergencies and the large number of chronically food-insecure people benefiting from the targeted food distributions. The volume of food required varies from year to year in line with the weather, which may affect the size of domestic harvests, the availability and price of basic staples and the livestock sector. The beneficiaries may be different from year to year according to where the crisis is worst. The reserve managers plan regular release and replenishment of stocks, however, because there will always be some call on the reserve by registered food-distribution agencies awaiting arrival of imported food or

improvement in the supply situation in local markets. This eliminates problems that arise when stocks must be held for long periods and rotated periodically to maintain quality; it also reduces costs and facilitates efficient management of the reserve.

The Ethiopian reserve is backed by an efficient, reliable information system, clear management rules and accounting procedures and a high level of collaboration and accountability among partners at all levels and across all sectors. There is as yet no accompanying market-development programme, however, and the number of chronically food-insecure people far exceeds those reached by current food-distribution programmes. There is growing recognition in Ethiopia that the emergency relief programme needs to be complemented by a safety-net programme linked to the government's agricultural and rural development policies and objectives, as defined in its evolving PRSP. As these policies evolve, the Ethiopian reserve may evolve into a more comprehensive food-security reserve that meets the preconditions specified in Section V.B.

B. Areas for regional action

Some countries have indicated a willingness to host portions of a regional or sub-regional food reserve. Physical reserves at the regional or sub-regional level are not recommended, however, because of the high management and logistics costs involved and potential delays in decision-making. National reserves could instead become building blocks for a reinforced food-security system for the continent.

Complementary actions could be taken at regional and sub-regional level to improve the integration of regional food markets and the efficiency of national reserve systems. These are summarized below.

1. Regional information systems

Regional organizations in Africa have experience with regional information systems, which could be further developed and strengthened. Regional systems obviously cannot work efficiently unless national systems function properly and national authorities honour their commitments to deliver data promptly to the required standard. If these conditions are met, regional units can assemble, analyse and release reports on food-security conditions in consultation with national collaborators, who retain ownership of the data they provide, and with international partners. Such an approach can result in important cost savings for national contributors in terms of personnel and equipment. Analysing and reporting information at the regional level can also reveal opportunities for cross-border trade and cooperation agreements between food-reserve authorities that might not emerge if information were generated and disseminated at the national level only.

i. Market information

Although circulation of current, reliable market information is essential for successful operation of food-security reserve systems in Africa, much remains to be done to satisfy this requirement. One of the most important impediments is the lack of local institutions that could assume responsibility for timely collection and dissemination of market information.

The Inter-Governmental Authority on Development (IGAD) sub-region has created a decentralized market-information system that is meant to rely on regular contributions

from all member countries and use the internet to assemble and disseminate information. It is not yet functional in that not all partners contribute regularly, those that do are often late and regional bulletins cannot be updated as scheduled. The design concept is user-friendly and low-cost, however, and could be adapted for use in other sub-regions.

This is a sector in which public/private partnerships could be explored. A regional market-information unit could, for example, link up with national and local chambers of commerce, whose members could be both suppliers and users of the information. The unit could also enter into agreements with regional mass-media outlets for timely dissemination of market information, so as to reach the largest possible number of users in the shortest possible time.

ii. Early warning

Regional early-warning systems that use meteorological information and satellite imagery to predict harvest outcomes operate in the SADC and CILSS sub-regions. This information is widely disseminated and is used by national and international agencies to prepare early-warning reports for at-risk areas. The information provides early indications of locations where food emergencies may occur and is an essential component of initial end-of-season crop-production estimates produced by most early-warning systems in Africa.

iii. Food-security situation reports

Crop-production estimates feed into the annual food-security situation reports produced by CILSS and SADC at the end of the main harvest season. These reports include evaluation of expected demand and supply, and provide a first indication of the likely quantity of exceptional national and regional food aid needs. The process involves consultations with all CILSS member countries and technical agencies such as the Agro-Hydro-Meteorological Centre (AGHYMET), the Famine Early-Warning System Network (FEWS-NET) and GIEWS, so that the results represent a consensus of all participants; there is thus little likelihood of differences arising later between the CILSS estimates and those used by member countries in subsequent appeals for food aid. This means that the CILSS reports enjoy a high degree of credibility and can be used as supporting evidence for national estimates used as a basis for decisions about reserve withdrawals or replenishments in Sahelian countries each year. Other regions, including SADC, are less advanced in this respect, but a number of regional organizations have established regional food-security information systems on the lines of the CILSS model. A network of such regional systems covering the entire continent would be a desirable goal.

iv. Vulnerability and food needs assessment

Capacity is needed in Africa to produce regular vulnerability and food-needs assessments as a guide for targeting safety-net programmes and emergency relief. Regional information units are not well positioned to carry out vulnerability and food needs assessments themselves, because (i) the assessment criteria are likely to be location-specific and (ii) the primary assessment activities are often more suitable for implementation by district or community-based information systems. There is, however, scope for a regional capacity-building programme for local people who want to conduct their own vulnerability and food-needs assessments and for national

agencies that collect local information for use in decision-making. Several bilateral donors and WFP's vulnerability assessment and mapping (VAM) unit are active and would be well positioned to support such a programme if requested to do so. WFP has assisted in the establishment of vulnerability assessment committees (VACs) in seven SADC member states.

2. Facilitation of cross-border and intra-regional trade

The existence of numerous natural trading areas was noted in Section V.B.2. It is known that substantial quantities of food move informally across national borders in these areas, but there is no precise information about the volume or the terms and conditions of this trade. Costs are almost certainly higher than they need be because of the official controls and lack of transparency characteristic of such intra-regional trade; the food-security benefits that could be obtained by facilitating market development in these natural trading areas are therefore lost.

Formal trade in Africa comprises only a small share of food imports; the reasons for this are discussed in Section III.C. The data presented in Section II.A.2, however, shows the important role that trade can play in contributing to food security where food crop production is variable. Actions that regional authorities could consider to facilitate cross-border and intra-regional trade in food commodities are outlined below.

i. Brokering agreements to eliminate trade restrictions, especially in natural trading areas

The current reluctance of many African leaders to maintain open borders with neighbouring countries when domestic crop production is poor needs to be addressed if regional food markets are to fulfil their potential as a food-security reserve mechanism. Action is needed to create opportunities for leaders and key members of the private sector in countries with natural trading areas to meet and discuss policies relating to cross-border trade and its links to food-security objectives. Regional authorities are well placed to convene such meetings and broker agreements that could open up natural trading areas for sustained market development.

ii. Establishing a regional coordination mechanism to ensure regular maintenance of major road and rail networks to international standards

A major constraint to market development and cost-effective delivery of relief food is the poor condition of transport infrastructure. Maintenance costs are likely to remain the responsibility of national governments for the foreseeable future, but consideration could be given to regional action to facilitate (i) more cost-effective use of funds through a shared account for infrastructure maintenance and (ii) the use of regional contractors to service several countries under a single contract. This approach could enable economies of scale whereby the size of a regional maintenance contract would allow the winning bidder to deploy managers and equipment more efficiently and to ensure that work was completed to satisfactory quality standards.

iii. Acting to promote greater use of risk-management instruments to remove credit constraints for African traders wishing to engage in intra-regional trade

The primary responsibility for developing and promoting greater use of risk-management instruments is that of the private sector. Regional authorities could facilitate progress, however, by promoting dialogue and information exchange between bankers, insurers and traders. They could monitor national experiences as discussed in Section III.C.4 and encourage replication of those that seem most promising.

3. Emergency preparedness

i. Maintaining a regional financial reserve

The idea of establishing a foreign exchange food-reserve fund in a major trading currency is attractive. The concept is similar to an insurance scheme, and is based on the principle that if all countries in a region pooled their food-reserve funds, the size of each contribution would be smaller than if each country held its own reserve fund. Funds deposited in such an account would be deposited with an appropriate financial institution and drawn upon by participating countries to finance food imports or local purchases in surplus-producing areas according to agreed rules. Although the secretariats of regional authorities are not equipped or staffed to manage such a pool fund, they could easily obtain the necessary personnel.

ii. Facilitating commodity exchanges between the physical reserve systems of neighbouring countries where this is mutually advantageous

Extreme weather events may affect several African countries simultaneously, but in any one year some are usually more adversely affected than others. Neighbouring countries linked by good transport infrastructure could therefore borrow from each other's physical reserves, to the advantage of both. Such borrowings could be arranged by bilateral contacts, but regional authorities could help by establishing food-reserve coordination committees.

iii. Contracting to food aid donors to mobilize and manage pre-positioned food-aid stocks for use in any country in the region with exceptional needs

Another proposal is for donors to pre-position food-aid stocks in a few central locations for delivery to countries requiring urgent access to imported food to back up their safety-net or emergency relief programmes. As discussed in Section III.C.2, a constraint hindering implementation is the substantial amount of resources needed to manage the pre-positioned stocks. Regional authorities could establish cost-effective regional food-aid reserve management units to help to overcome this constraint.

iv. Coordinating humanitarian relief in case of a large-scale food crisis affecting several countries in the region

Consideration could be given to establishing regional emergency preparedness and response units that would be able to mobilize relief supplies and logistics support at short notice and coordinate donors' contributions as they arrive after a regional emergency has been declared. Currently, such coordination functions are often carried out by the United Nations system, with logistics support from regional entities; the role of regional entities could be formalized and strengthened.

VIII. CONCLUSIONS

This report and the background studies contain a wealth of information and analysis on past and potential roles and operating mechanisms for food-reserve systems in Africa. The report covers conditions in the food and agriculture sector that led African leaders to call for the study, lessons learned from past experience and options for food-security reserve systems for future consideration by national and regional authorities. Six broad conclusions emerge:

1. All African countries would benefit from clear food-security policies that (i) provide food safety-nets for chronically food-insecure people, (ii) envision special relief programmes in the event of food emergencies, (iii) explain the roles of domestic food production, food trade and food reserves in maintaining adequate supplies and (iv) clearly specify the roles to be played by governments, farmers and the private sector.
2. Domestic food production will continue to be the major source of food supply throughout Africa for the foreseeable future; actions to improve productivity will therefore be crucial for the success of any food-security policy.
3. Countries have a variety of options for maintaining supplies when harvests are poor and for managing supplies destined for beneficiaries of safety-net or emergency food-relief programmes; these range from complete reliance on trade to relatively large physical reserves complemented by financial reserves and measures to promote the development of domestic food markets.
4. If an option involving physical reserves is preferred, a number of measures have to be put in place, including: (i) compatible food-security, market development and trade policies; (ii) credible early-warning and food-security information systems; (iii) suitably located and well maintained transport, storage and communications infrastructures; (iv) clear stock-management and accounting procedures; (v) trained staff; and (vi) adequate funding arrangements. A system that meets these conditions is referred to as an integrated food-security reserve system. Mali's PRMC is the best example of an integrated food-reserve system reviewed in the course of this study.
5. The Ethiopian Emergency Food Security Reserve is one of the best current examples of an emergency food-security reserve system.
6. Action at the national level could complement national food-security policies and reserve systems in the areas of market information, early warning, assessment of food security and food needs, facilitation of cross-border and intra-regional trade, and emergency preparedness and response.

ANNEX I: Selected National Experiences with Food Reserves

As background to this report, case studies have been prepared covering experiences with physical food reserves in eight African countries.² The experiences of Ethiopia, Mali and Tanzania are presented in this Annex, representing three models for food-security reserve systems that countries may wish to consider. The distinguishing features are:

- **Integrated food-reserve system**

This system incorporates a small physical reserve with complementary elements that encourage improved production of staple foods and development of domestic markets and intra-regional and international trade to achieve national food-security objectives. The model for this approach is that of Mali.

- **Food-security reserve**

This is a reserve maintained as a form of commodity bank. Relief agencies and registered NGOs borrow from the reserve to cover urgent food-distribution requirements while awaiting procurement and delivery of additional supplies; they replenish the reserve as soon as their own supplies arrive. It is useful in situations of recurrent food emergencies, and could be adapted as a back-up for safety-net programmes targeting chronically food-insecure people. The model for this approach is Ethiopia.

- **Strategic grain reserve**

This is a reserve stock that has evolved from a price-stabilisation buffer stock and that may still be managed with a view to stabilizing market prices without interfering with the smooth functioning of liberalized grain markets, with private traders bearing the responsibility for moving grain from the reserve into open markets when prices are high, and out of markets and into the reserve when prices are low. The model for this approach is Tanzania.

² The full case study reports may be obtained from the NEPAD secretariat. They are contained in the following documents:

- *WFP-NEPAD study on food reserves in Africa: Ethiopian Model*, Addis Ababa, WFP, May 2004.
- *WFP-NEPAD Study on Food Security Systems in West Africa: Mali, Burkina Faso and Niger: Record of the Past and Current Situation*. Rome, WFP, March/April 2004.
- *Towards Food Security and Price Stability in Southern and Eastern Africa*, Johannesburg, NEPAD and WFP, May 2004.
- *Food-Reserve Systems in Africa: a Case Study of Sudan*, Khartoum, WFP, May 2004.

A. Integrated food-reserve system: Mali

Before the Sahelian drought crises of 1972–1973 and 1973–1974, the Office des Produits Agricoles du Mali (OPAM – the agricultural commodities board of Mali), had a monopoly of purchase and sale of cereals for price stabilization. Following the 1972–1974 food emergency, OPAM was given the additional responsibility of establishing a food-security reserve of 70,000 mt over four years. The country did not have the resources to meet this target, however, so it had to rely on international assistance. A food reserve was established with financial support from various donors, including WFP, and technical assistance from FAO, but at a level well below the target. By 1978, the size of the reserve had still reached only 20,000 mt of cereals, which reflected serious financial constraints; OPAM was also having difficulty stabilizing prices.

In 1981, the Government, with the support of donors, decided to liberalize marketing of coarse grains and to reform the marketing board. Because the price of grain had been maintained at artificially low levels in urban areas for years, the reform made provision for gradually raising consumer prices by using food aid as a buffer while increasing and supporting prices to producers. The underlying strategy for the market reform involved:

- raising cereal prices at the farm level so as to provide an incentive for farmers to increase cereal production;
- liberalizing the cereal trade to introduce more flexibility into market operations and encourage greater private-sector participation; and
- redefining the role of OPAM and progressively transferring trade functions from the public to the private sector to reduce the public deficit and dispense with the need for price subsidies from the state budget.

A unique multi-partner structure was established in Mali in 1981 to manage a counterpart fund created through monetization of food aid, with the aim of financing the comprehensive programme for restructuring the cereal market (PRMC). The fund was intended to finance a series of accompanying measures aimed at implementing the planned reforms; the food aid would guarantee adequate food supplies during the transition period.

Besides promoting production and trade in cereals under liberalized market conditions, PRMC provided mechanisms to prevent and respond to food crises, including establishment and management of a food-security reserve, an early-warning system on impending food crises, and implementation of an emergency intervention plan when needed. The integrated food-reserve system that evolved from this initiative has functioned well over the years and represents one of the models that could be considered for adaptation and replication elsewhere on the continent.

Major steps in the development of PRMC

PRMC is at present in its sixth phase (2000–2004). Each of the preceding phases capitalized on previous results and contributed to a specific set of objectives. The main characteristics of each phase are summarized below.

- Phase I, 1981–1987, marked the start of the break-up of the Government's monopoly on cereal markets and the gradual phasing out of price controls.
- Phase II, 1988–1990, saw reinforcement of the private-sector role in the cereal market through improved market information, training, organization and credit. Government marketing bodies were restructured and the role of OPAM was reduced to management of the food-security reserve, distribution of food aid and responsibility for the information systems relating to marketing and food security.
- Phase III, 1991–1993, was characterized by continuing promotion of the private sector and by management improvements in government marketing organizations.
- Phase IV, 1994–1996, stressed both reinforcement of food security and modernization of the cereal market. It was characterized by effective transfer of responsibilities and duties to Mali, which set up a permanent secretariat to coordinate activities and keep accounts.
- Phase V, 1997–1999, started to deal with emergency situations through a newly created Reinforced Food Security System (RFSS) and by reducing medium-term food risks through improving the efficiency of the cereal market. The phase also marked the start of financial contributions by the Government to help cover operating costs of the system.
- Phase VI, 2000–2004, enhanced the role of Government, which now covers 80 percent of the operating costs of the food-security system, calculated at CFAF2.5 billion per year. External partners continue to contribute regularly, but to a lesser extent – about CFAF500 million per year. If need be, however, they are prepared to assist the Government in dealing with a major emergency such as a generalized food crisis, when they could rapidly mobilize the additional financial means required.

Instruments of the PRMC

The integrated food-reserve system operated by the PRMC in a liberalized marketing environment has the following elements:

- Early-warning system (*Système d'alerte précoce*). This is an information system that tracks the situation in at-risk zones and proposes measures to mitigate the negative effects of poor harvests on local populations.
- Market-information system (*Observatoire sur les marchés agricoles*). This is an information system that monitors and disseminates market price information.
- Agricultural Commodities Board of Mali (*Office des produits agricoles du Mali*). This is the government agency that emerged from the restructuring of the earlier price-stabilization board and rural-development agency. It manages the national security stock of 35,000 mt of local cereals and the emergency intervention plan, which can be activated rapidly in case of need.
- Joint counterpart fund (*Fonds commun de contrepartie*). This is the operating fund for the PRMC. It meets the entire costs of operating the system and of implementing food-security initiatives recommended by the early-warning system.
- Food-security fund (*Fonds de sécurité alimentaire*). This is a reserve fund comprised of financial commitments by the Government and donors sufficient to import and distribute 25,000 mt of cereals in the event of a major food emergency.

A collaborative framework for consultations

Coordination between PRMC's partners currently takes place at the following levels:

The Donors' Management Committee (CGD) meets twice a year or more as needed and is made up of the Mali-based donor country representatives and representatives of organizations who are PRMC partners. CGD examines and approves PRMC's budget as well as the most important decisions to be made on the basis of dossiers prepared and approved by the Technical Committee. The Technical Committee is the programme's day-to-day management body; it meets twice a month, or weekly if need be, and groups representatives of the external partners and of the Malian ministries under the chairmanship of the responsible Minister. Such frequent meetings allow everyone to familiarize themselves with the dossiers and to develop a common approach, which enables PRMC to operate on a consensus basis. Since the start of the programme, WFP has been coordinator of the donors; it also manages PRMC's permanent secretariat.

In line with its assumption of greater financial responsibility for PRMC, the Government established a Food Security System Steering and Coordination Committee by decree in February 1999. Following adoption of the strategic framework for food security for Mali in August 2002, however, a new National Council for Food Security was created; the Steering and Coordination Committee was replaced by a Technical Committee for the Coordination of Food Security Policies. The committee is composed of ministries directly involved in food-security matters, the PRMC donors and representatives of civil society. It is expected to meet four times a year and to take decisions by consensus. A sub-committee composed of three donor and three government representatives is responsible for financial control of PRMC and oversees the work of the secretariat.

Food aid distribution comes under the general supervision of the Ministry of Territorial Administration and Local Collectivities. The Division for Emergency Action and Rehabilitation and the Support Unit for Basic Development act on information and recommendations of the early-warning system, which is part of the same Ministry. Together with OPAM and authorities of the decentralized institutions, these units initiate, organize and monitor food distribution to affected populations.

Results achieved

In Mali and in the sub-region the PRMC's integrated food-reserve system is considered a particularly effective model for coordination between government and development partners. Donors have a degree of flexibility that enables them to modify their positions according to the requirements of the initiative. Decisions by donors are reached by consensus, which enables them to present a common position in discussions with the Government. This flexibility and informality, which avoids rigid procedures and rules, is considered to be a major strength of this approach.

Decisions regarding releases from the national security stock for safety-net programmes are made by a joint donor-management board on the basis of information provided by the early-warning system. Periodic technical reports on the food-security situation, including production forecasts, local market trends and assessment of the

food needs of vulnerable groups, is used to guide the decision-making processes of the joint government/donor-management board. The reserve is built up to the established limit of 35,000 mt through local purchases during good crop years. If food aid is required to meet exceptional needs in poor years, grain is released from the reserve to cover immediate requirements pending delivery of imported food aid. Reserve managers may export grain from the reserve as part of the normal stock rotation; they maintain stock size at the fixed level if there has been no call for food aid distributions for some time. Cash earnings are deposited in a reserve account that in recent years has been used to fund jointly agreed agricultural development activities.

In the two decades since it was set up, PRMC has proved its effectiveness in dealing with local and short-term food insecurity and has demonstrated its durability. Its more important results include:

- effective disengagement of the Government from cereals markets and the restructuring of the government offices involved;
- liberalization of the cereal trade, prices and transport;
- creation of an environment favourable to the promotion of private operators and associations in the cereals sector;
- establishment of a system providing information and support to decision-making, including data aimed at ensuring food security;
- improvement in the food situation as a result of an increase in cereal production, more fluid marketing and improvement of the supply chain to urban markets; and
- efficient handling of food crises and improved distribution to the most impoverished populations.

Issues that will require attention during the next phase include:

- simplification of the complicated management structure;
- greater harmonization of bilateral donor assistance with the guiding principles of the PRMC;
- more careful attention to handling stock rotations to minimize impacts on cereal markets and avoidance of stock releases without prior consent of the management board;
- monitoring and control of operating costs, which are high and apparently rising;
- facilitation of local bank financing of the food trade;
- incentives to encourage traders to make more significant investments in storage that would enable them to buy up local surpluses following a bumper crop.

Regional follow-up

The Mali approach has been adapted and implemented in Burkina Faso, Chad, Mauritania and Niger. CILSS recently adopted a strategic framework for sustainable food security in the Sahel, which aims to eradicate food insecurity by 2015. This strategic framework has five main objectives, including sustainable diversified agriculture, an integrated regional food market and sustainable access by vulnerable populations to food and basic social services. Food security has been embodied in macro and sector policies, particularly poverty-reduction and regional integration

policies in the framework of national PRSPs. In this strategic framework, which emphasizes the importance of increased regional agriculture and food trade across the Sahel and with the coastal countries along the Gulf of Guinea, the trend towards integrated food-reserve systems with minimum stock targets is likely to continue. At the regional level, continued strengthening of the information-gathering functions of AGRHYMET and the *Institut du Sahel* will provide important support.

B. Food-security reserve: ETHIOPIA

In 1972–1973 Ethiopia experienced a severe food emergency following three consecutive years of poor rains; the Government requested assistance from FAO for formulating a food-security programme and in response an FAO mission visited the country and prepared a policy and action programme to strengthen national food security. Ethiopia then secured a World Bank loan to build warehouses in several locations, but there was little improvement in the country's food-security situation because food emergencies persisted in many parts of the country.

In 1979, another FAO mission visited the country and prepared a food-security project that would establish a food-security reserve of 180,000 mt over a four-year period for free distribution to populations prone to food emergencies in various parts of the country. The amount was considered sufficient to meet the cereal needs of 3.7 million vulnerable people for four months. But the government did not have sufficient resources and the country could not produce enough surpluses for the reserve, so its size was limited to the amount donors were prepared to contribute.

Establishment of EFSR

Ethiopia's EFSR became operational in 1982 when it was established as a project in the Relief and Rehabilitation Commission (RRC) with financial assistance from the Government of the Netherlands and an initial WFP donation of 12,000 mt of wheat. A food-security unit (FSU) was set up under the umbrella of the Relief and Rehabilitation Commission (RRC) to manage the reserve, with technical assistance from FAO.

Major policy decisions relating to withdrawal, replenishment and recycling of the reserve stock were to be made by the Technical Committee comprised of FSU, RRC, the Agricultural Marketing Corporation (AMC) and WFP, which represented donors. The Technical Committee reported to a Food Security Committee at ministerial level, which made the final decision. The two committees ensured that the reserve was drawn upon only when a food emergency had been declared. Strict accounting procedures were observed. Responsibility for maintaining the reserve stock was given to the Agricultural Marketing Corporation, which possessed warehouses in various parts of the country; FAO technical assistance provided training for national staff of FSU and AMC in warehouse management, pesticide application, stock and quality control, grain testing and financial accounting. The Government's contribution included funds for maintenance of the donated stocks and salaries for national staff of FSU.

Problems encountered in the early years (1982–1988)

During the initial period of operation, EFSR faced problems that prevented it from functioning as intended, including:

(i) Reserve size

By end of the project on 31 March 1988, the reserve had reached a level of only 27,000 mt against a target of 180,000 mt, with contributions of 12,000 mt from WFP, 5,000 mt from the Governments of the Netherlands and 10,000 mt from Canada. The slow build-up was attributed partly to frequent withdrawals to meet persistent food shortages and to lack of donor confidence in the utilization of the reserve.

(ii) Location

Stocks were not strategically located, because suitable AMC warehouses were scattered and not necessarily in drought-prone areas. This created problems with reserve operations, maintenance and supervision; stocks had to be brought to major consuming centres for recycling. These logistics problems resulted in high operating costs.

(iii) Market environment

At that time there was no free grain market in Ethiopia, which created problems with grain rotation and recycling: this could only be done through exchanges with AMC. But AMC's buying standards did not conform to the required standards for the reserve and therefore there was always a danger of inferior grain getting into the reserve during recycling.

(iv) Political environment

Assistance to the food-security reserve project took place at a time of civil war, which hampered the project; at one time one of the major reserve storage facilities was taken over by security forces.

Operation of the reserve, 1989–1991

The project was extended from 1989 to 1991, with further financial support from UNDP and continued technical assistance from FAO. In order to increase donor confidence, the FSU was turned into an autonomous entity and renamed the Emergency Food Security Reserve Administration (EFSRA), overseen by a Technical Committee that included representatives of WFP, the European Union, the Canadian International Development Agency (CIDA) and the United States Agency for International Development (USAID). Achievements during this period included:

(i) Further build-up of the reserve

The size of the reserve increased from 27,000 mt to 102,500 mt, with donations of 11,500 mt from Canada, 4,000 mt from India, 5,000 mt from Germany and 55,000 mt from local purchases and imports by the Government. The reserve stood at 45,880 mt in January 1991, however, as a result of releases .

(ii) Development of commodity bank function of the reserve

The reserve also acted as a bank from which recognized agencies such as NGOs and donors could take loans to cover unexpected delays in the arrival of supplies, provided they gave guarantees for replenishment. This function reduced the reserve's over-dependence on AMC for recycling and the associated risk of inferior grain.

Developments since 1991

Since 1991, the reserve has been managed by the autonomous EFSRA, which was created to revitalise EFSR and rebuild donor confidence. The main objective has been

to provide a readily available source of basic food for use in the initial stages of food shortages resulting from drought or other disasters until food can be supplied through regular appeals. Food can be released from EFSR in the form of a loan to a registered NGO or government agency involved in relief and rehabilitation work, or in the form of a free withdrawal on declaration of an emergency if the loan mechanism is insufficient to alleviate the problem.

EFSRA is governed by the Emergency Food Security Reserve Board consisting of ministers of economic development and cooperation, finance, agriculture and trade and industry; it is chaired by the commissioner of the Government's Disaster Prevention and Preparedness Commission (DPPC, formerly RRC). Day-to-day operations are overseen by the Emergency Food Security Reserve Technical Committee consisting of department heads from ministries, DPPC, managers of the Ethiopian Grain Trade Enterprise and the Food Management Unit in the Ministry of Agriculture, and four donor representatives from Canada, the European Union, the United States and WFP.

EFSRA has established warehouses in strategic locations to enable timely delivery to drought-prone areas. Most of the warehouses have been constructed using government funds. Build-up of the reserve has been financed mainly by donor contributions; donors have also financed warehouse construction, training in reserve-stock management and development of a food-security information and early-warning system with local antennae. Management and maintenance costs are covered by the Government. Donor representatives participate in technical deliberations, but final decisions regarding management of the reserve are taken at ministerial level.

Emergency distributions are handled by DPPC, WFP and NGOs. These relief agencies obtain grain on loan from the reserve and repay EFSRA when their food arrives or from local purchases.

During the decade, the physical reserve target has been raised several times; it currently stands at 407,000 mt, enough to feed 4.2 million people for four months. The amount in the reserve fluctuates from month to month according to the rate of borrowings and replenishments; commitments from donors and the Government are sufficient to achieve a stock level of over 400,000 mt.

Contribution of EFSR

EFSR has proved to be efficient in meeting its objectives: in "normal" years during the 1990s, it provided an average of 160,000 mt of grain loans per year to DPPC, WFP and NGOs to alleviate food shortages resulting from minor droughts.

In 1994, when there was an impending famine and grain stocks held by NGOs and DPPC were not sufficient to meet the need, EFSR released 94,000 mt of grain on loan to 15 NGOs and 52,000 mt in free withdrawals to DPPC on approval of the EFSRA Technical Committee and the Board. This grain was distributed to drought-affected people in northern and southern parts of the country, where it helped to mitigate the serious food shortages, prevented people from migrating in search of food and avoided disintegration of their livelihoods.

In 1997, EFSR was the only stock on which the Government, WFP and other NGOs could rely for emergency distributions to needy people; 302,000 mt of grains were released on loan to DPPC and NGOs for immediate distribution to affected populations pending arrival of imported supplies.

Similarly, 324,000 mt of grains were loaned to DPPC and various NGOs between June 1998 and August 1999 to meet emergency food needs. EFSR was the only source of relief food during the 2000 drought. It played a vital role in avoiding starvation in 2003, when about 14 million people were affected by drought; and stock rotation through the reserve amounted to 2.5 times its size.

Uniqueness and replicability

Because Ethiopia is landlocked, imports can take a long time to arrive. The sometimes cumbersome process by which food aid donations are authorized can result in food aid shipments arriving too late to address urgent needs. Donor partners have acknowledged that in some years – 2003, for example – their relief programmes, executed through NGOs, would not have been able to address the food needs of affected populations without access to EFSR commodity loans. A crucial factor contributing to the success of EFSR has been the competence of the personnel managing the stocks and producing the information on which decisions to declare an emergency are based. The high degree of commitment of staff handling stocks and managing food-distribution programmes at the local level is another important factor in the good performance record of EFSR.

The Ethiopian model could work well where food needs are large and food-relief programmes can be organized to respond to chronic as well as sudden-onset crises. This means that rotation of stocks is assured at low cost because of constant withdrawals and replenishments. The size of Ethiopia's population, which is the second largest on the continent after Nigeria, means that the number of food-insecure people – 42 percent of the total – is also very large. The proportion of the population that is food-insecure is similarly high in several other countries, particularly in eastern and southern Africa, suggesting that a variant of the Ethiopian model might work well for them.

C. Strategic grain reserve: Tanzania

Tanzania is unusual in that its main maize-producing areas form natural trading areas with neighbouring countries to the south and the north; they can supply the traditionally food-deficit centre only at a relatively high cost. The post-independence Government that took power in 1961 nevertheless developed a policy of national self-sufficiency, which was vigorously pursued. The government organized an official marketing channel for main food staples comprising the following elements: farmers, primary cooperative societies, regional cooperative unions, the National Milling Corporation (NMC) and consumers.

Before 1986, NMC enjoyed an official trade monopoly in maize and other staples; it was expected to purchase and sell staple food commodities at officially determined prices, which were uniform throughout the country. Most maize that moved through the marketing chain supplied consumers in the capital, Dar-es-Salaam; in normal

years it was assumed that people in producing areas would retain sufficient stocks from their own production to cover their consumption requirements. Cereal imports and food aid were used to cushion the effects of domestic supply shortages during the 1972–1974 drought and again in the early 1980s, when drought and other difficulties facing the agricultural sector caused production to fall short of demand.

Establishment and current role of the Strategic Grain Reserve (SGR)

Following the 1972–1974 drought, the SGR was established under NMC and a Food Security Unit was established in the Ministry of Agriculture with the objective of reducing reliance on food imports in emergencies. The Government's attempts to increase food crop production and advance food self-sufficiency through interventionist policies did not have the desired result, however, and beginning in the mid-1980s it adopted structural and policy reforms that put emphasis on a reduced government role in production and marketing activities and an increased role for the private sector.

Liberalization of the grain markets started in earnest in 1985 and was finalized in 1989. As part of this process, the policy of fixing prices was abandoned and the Government's role was limited to fixing an indicative producer price for maize. NMC, the cooperative unions and the primary cooperative societies were given the freedom to negotiate prices when doing business with each other or with other agents; government intervention in markets was limited to setting an appropriate procurement price for the SGR, which in 1991 was integrated into the Ministry of Agriculture and Food Security; an upgraded Food Security Department was made responsible for its management. The SGR statutes were not altered, but its main function became holding stocks for targeted interventions of the government rather than supporting a price-stabilization policy. Nevertheless, as SGR was mandated to enter the market to purchase maize at an officially determined price to maintain its stocks and to sell at subsidized prices to target beneficiaries in food-insecure parts of the country, it could still influence prices to some extent. It was also meant to help to facilitate transfers of maize from surplus-producing regions to deficit regions at times when such transfers would not otherwise have appeared attractive to the private sector.

SGR has a storage capacity of 205,000 mt, though stock levels seldom approach this amount. The reserve is still managed by the Food Security Department in the Ministry of Agriculture, but major decisions are made by a Board of Trustees composed of high-level representatives from other ministries. Replenishments and releases are done through tendering; procurement is mainly from farmers and only occasionally through imports. During the 2003/04 marketing year, 32,000 mt were sold to private traders at a favourable price with the intention that the traders would resell in designated locations at an agreed low price. The intention was to implement a targeted food-subsidy programme, but the traders did not respect their price commitments. A more successful approach was distribution of 21,000 mt to local authorities for sale to vulnerable groups at a subsidized price.

Food-security information constraint

In the ten years from the mid-1980s to the mid-1990s, Tanzania benefited from a programme of technical assistance to the Food Security Department that enabled it to

establish a Crop Monitoring and Early Warning (CMEW) system and a Disaster Management Department, and to define a policy to guide implementation of activities related to the function of the SGR.

The structures remain in place, but the current staffing pattern, funding limitations, and lack of coordination with other government information-gathering units have seriously hampered the ability of CMEW to continue the functions for which it was established. Consequently, food-supply data for Tanzania are extremely poor: estimates of per capita availability vary from a high of 2,650 kcal to a low of 1,870 kcal per person per day. There are three explanations for this: (i) failure to account for unofficial exports when estimating domestic supply, (ii) poor quality of data for root crops, which account for a significant share of staple crop production in the country, and (iii) variations in estimates of the size of the population.

Official statistics show a normal production of 2 million mt of maize, 2 million mt of other cereals and 3 million mt of cereal equivalent from tubers and bananas. Assuming that 500,000 mt go into unofficial exports and including 20 percent of calories from other foods, the national average per capita dietary energy supply per day is 2,364 kcal. This is close to the estimate of 2,400 kcal per person per day cited by the National Office for Food Security as the normal consumption level in the country. The FAO food balance sheets, however, give a lower per capita availability figure of 2,000 kcal per day, of which nearly 40 percent comes from non-staple foods. Although there are regular meetings of the various participants of the food-security committee that is meant to release CMEW estimates, Tanzania's Food Security Department does not produce regular comprehensive reports on recent production trends and consumption needs.

Accomplishments and areas targeted for improvement

Despite the lack of credible food-security information for the country as a whole, Tanzania has been able to generate estimates of the needs of vulnerable people for emergency relief based on direct assessments of food distribution requirements in districts where food emergencies regularly recur, mainly in the central region and the highlands of Mount Kilimanjaro. These assessments, which are carried out annually with donor support, have provided the basis for deciding on releases from the country's SGR since grain marketing was liberalized in 1991.

In May 2000, the Food Security Information Team was established to function as a network of six agencies of the Government, six international organizations and five NGOs. Government agencies include: the Disaster Management Department in the Prime Minister's Office (network chair), the Food Security Department of the Ministry of Agriculture and Food Security (network secretariat), the National Bureau of Statistics, the Tanzania Food and Nutrition Centre, the Tanzania Meteorological Agency and the Regional Coordination Department of the Office of Regional Administration and Local Government; FAO, the United Nations Children's Fund (UNICEF), WFP, USAID, the European Union and the United Kingdom Department for International Development (DFID) are the international agencies that participate; CARITAS, OXFAM-UK, Save the Children UK, the Norwegian People's Aid and the Rural Food Security Team at the University of Dar-es-Salaam are the civil society members.

A new draft National Food Security Policy envisages the following internal relationships:

Local government authorities:

- establish food-security committees that will focus on food-security issues at the district level;
- institute mechanisms for monitoring and responding to food insecurity at the district level;
- improve communications and marketing infrastructure at the district level; and
- develop and disseminate messages focusing on food security, and develop a system of vulnerability mapping at the district level.

SGR:

- stock sufficient cereals and monitor stock levels in different parts of the country;
- advise on size and location of storage facilities; and
- work with the Disaster Management Unit in responding to emergencies.

The Disaster Management Department:

- respond to emergency food insecurity in consultation with the National Disaster Relief Committee; and
- work with the Crop Monitoring and Early Warning System and SGR to streamline the logistics of responding to emergencies and coordinate efforts to ensure timely response to food emergencies.

Complementary role of free trade

Food marketing in Tanzania is now largely liberalized, although interregional taxation can hinder the movement of agricultural commodities because districts try to keep grain in their area or want to generate funds for local budgets. High transaction costs because of bad roads and inadequate storage – storage losses up to 20 percent with farmers' storage in bags – in remote areas are a disincentive to produce for the domestic market. The logistics difficulties impeding internal trade combined with often much higher food prices in neighbouring countries can create considerable instability in Tanzanian food markets, even though total availability in the country appears adequate. To reduce transport costs, the Government now emphasizes improvement of rural roads. Several large traders who see a lucrative regional market are investing in improving the marketing infrastructure through a network of grain-collection points and intermediate storage facilities for holding their inventories.

Notwithstanding these difficulties and some as yet unclear policies with regard to SGR, the general food-security policy of the Government is progressive and open, because there are no restrictions on border trade or price setting. The Government uses private trade for all SGR operations, which has encouraged the growth of the private sector despite some continuing difficulties.

The diversity of staple foods consumed in Tanzania is itself a source of food security. Maize is regarded as the main staple, but during the 1990s it accounted for only 22 percent of the staple food basket. Other important staples include cassava, sweet potatoes, potatoes, plantains, sorghum, rice, wheat and millet, all of which are traded to some extent.

ANNEX II: Acronyms used in the document

AGHYMET	Agro-Hydro-Meteorological Centre
AMC	Agricultural Marketing Corporation (Ethiopia)
AU	African Union
CAADP	Comprehensive Africa Agriculture Development Programme
CGD	<i>Comité de gestion des donateurs</i> (Donors' Management Committee)
CIDA	Canadian International Development Agency
CILSS	Permanent Inter-State Committee for Drought Control in the Sahel
CMEW	crop monitoring and early warning
DES	dietary energy supplies
DFID	Department for International Development
DPPC	Disaster Preparedness and Preparation Commission
EFSR	Emergency Food Security Reserve
EFSRA	Emergency Food Security Reserve Administration
ESRI	Environmental Systems Research Institute
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	FAO Corporate Database for Substantive Statistical Data
FEWS-NET	Famine Early-Warning System Network
FFW	food for work
FSU	food-security unit
GIEWS	Global Information and Early Warning System
GNP	gross national product
IDP	internally displaced person
IFAD	International Fund for Agricultural Development
IGAD	Inter-Governmental Authority of Development
IMF	International Monetary Fund
JSE	Johannesburg Securities Exchange
KACE	Kenya Agricultural Commodity Exchange
NEPAD	New Partnership for Africa's Development
NGO	non-governmental organization
NMC	National Milling Corporation (Tanzania)
OPAM	<i>Office des produits agricoles du Mali</i>
PRMC	<i>Programme de réstructuration du marché des céréales</i>
PRSP	Poverty Reduction Strategy Paper
RFSS	Reinforced Food Security System
RRC	Relief and Rehabilitation Commission
SADC	Southern Africa Development Community
SAFEX	South African Futures Exchange
SAP	<i>Système d'alerte précoce</i>
SGR	Strategic Grain Reserve (Tanzania)
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VAM	vulnerability assessment and mapping
WFS	World Food Summit
WTO	World Trade Organization
ZACE	Zambia Agricultural Commodity Exchange
ZIMACE	Zimbabwe Agricultural Commodity Exchange