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Food security and agricultural development in sub-Saharan Africa

Building a case for more public support

Main report

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more public support

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FOREWORD

The beginning of the third millennium has witnessed a number of initiatives to eradicate poverty and food insecurity. The United Nations Millennium Summit, in September 2000, agreed on eight Millennium Development Goals (MDGs) which have been endorsed by nearly 190 countries. Among the key Goals is that of halving global poverty and hunger. The Goals were part of a broader attempt to encourage the international community to join forces in making a difference in the developing world, within which the needs are particularly acute in Africa where 34 of the world's 50 Least Developed Countries (LDCs) are.

The success of the numerous international and continental initiatives to combat poverty and food insecurity will in the end be judged by the extent to which they succeed in Africa, which remains the only continent that is not on track to meet any of the MDGs by 2015. In a region where incomes are too low for access via the market to ensure food security, persistence of hunger is largely due to poor performance of domestic agricultural production.

Much has been written and continues to be disseminated on the ills facing Africa's agriculture; prescriptions continue to multiply; economic reforms have been launched and tested – but the problems remain recalcitrant. FAO saw a need to look again at the underlying problems which escape solution and to this end, in 2004, the FAO Sub Regional Office for Southern and East Africa (SAFR) in Harare and the Policy Assistance Division (TCA) in Rome jointly initiated a comprehensive study on agricultural development and food security in sub-Saharan Africa (SSA).

The study aimed at drawing attention to empirical and conceptual evidence to demonstrate and make the case for increased and sustained investment in agriculture by both public and private sector agents. The results of the study, which were discussed with senior policy-makers from SSA countries, suggest that there is room for hope but that issues of widespread conflicts, low public and private sector investment, and inappropriate macroeconomic and sectoral policies will need detailed attention. They will help to guide FAO's policy assistance programmes in the region.

There is also still hope because Africa is itself recognizing the internal hindrances to success; at the level of Heads of State and Government, there is open frustration at persistent failure as well as determination to make the necessary changes. As evidence, one can highlight the adoption by the African Union (AU) Summit in Maputo, Mozambique, in July 2003, of the Comprehensive African Agriculture Development Programme (CAADP) of the New Partnership for Africa's Development (NEPAD). The African leaders also committed their countries to increasing the level of resource allocation to agriculture and rural development to 10 percent of national budgets within five years (i.e. by 2008).

This needs to be reinforced by corresponding commitment towards increasing development assistance to Africa by the donor community and International Financial Institutions (IFIs). It will be important that the application of resources from such an increase is guided by a clear understanding of the fundamental challenges; the reports of the study offer some of these. In the past, apart from political and institutional weaknesses, agriculture and the rural sectors have often been sidelined by politicians. This cannot change if sound analysis, of the type the study provides, is lacking.

A wide range of audience is invited to make use of the report but FAO hopes that its primary readers will include SSA ministers for agriculture and their senior advisers who, in their dialogue with ministers of planning and finance of their governments, need to make a more effective case for more resources. FAO also hopes that SSA's development partners and IFIs that have much influence on investment priorities and policies in Africa as well as universities and other rural-oriented national and international institutions, will find the report useful in their work.

FAO continues to undertake related studies, including on factors that reduce the attractiveness of agriculture in SSA as an investment option. In such work, FAO will continue to rely on collaboration with SSA governments as well as partnership with many individuals

and institutions that cannot be listed singly here but whose inputs are gratefully acknowledged. The study is being co-financed by the Government of France, whose support has proved essential and is greatly appreciated.

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ACRONYMS

ADB	African Development Bank
AED	Academy for Educational Development
AU	African Union
CAADP	Comprehensive Africa Agriculture Development Programme
CENSAD	Community of Sahel and Saharan States
CIF	Cost Insurance and Freight
DFID	Department for International Development
DRC	Democratic Republic of Congo
EC	European Commission
ECA	Economic Commission for Africa
ECOWAS	Economic Community of West African States
GDP	Gross Domestic Product
IFAD	International Fund for Agricultural Development
IGAD	Inter Governmental Authority on Development
IMF	International Monetary Fund
MDG	Millennium Development Goals
MK	Malawi Kwacha
MRY	Most Recent Year
MTEF	Medium Term Expenditure Framework
MVA	Manufacturing Value Added
NEPAD	New Economic Partnership for Africa
NIRI	Natural Resources Institute
ODA	Overseas Development Assistance
OECD	Organization for Economic Co-operation and Development
RATES	Regional Agricultural Trade Expansion Support Programme
PRSP	Poverty Reduction Strategy Paper
SOFI	State of Food Insecurity
SSA	Sub-Saharan Africa
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
WB	World Bank
WFP	World Food Programme

Executive Summary

Food Security in sub-Saharan Africa

Today, almost 33 percent of the population of sub-Saharan Africa (SSA), or close to 200 million people, is undernourished, of which close to 60 percent are in countries affected by conflicts. Chronic undernourishment is widespread throughout the region, but most of the increase in the number of undernourished over the last ten years took place in conflict countries – often endowed with abundant mineral resources - while the situation in other countries has in general improved albeit unevenly and at a very slow rate. The region as a whole remains susceptible to frequent food crises and famines which are easily triggered by even the lightest of droughts, or floods, pests, economic downturns or conflicts. Sub-Saharan Africa is the only region of the world where hunger is projected to worsen over the next two decades unless some drastic measures are taken to ensure peace, improve governance and achieve the economic development required to reverse the current trend.

Food supply

Cereals, roots and tubers play a central role in food supply in sub-Saharan Africa but their production has generally lagged behind the rate of population growth. Those countries that have been able to increase their cereal production and export agricultural products have generally been those in which food security improved. To satisfy demand for food, sub-Saharan African countries have had to rely increasingly on imports: 25 percent of cereal consumption is currently imported (compared with 5 percent in the late sixties). This proportion is much higher in poor countries with negative trade balance and high debt, for which these imports are not sustainable. Food aid, which had increased tremendously in the seventies, has now stabilized and amounts on average to 3 percent of cereal intake. But in some countries, food aid has become a regular source of supply and its proportion in the cereals consumed can be 20 percent or more, making these countries dependent on foreign handouts.

Access to food

Access to food by sub-Saharan African households has been undermined by the inability of countries to generate the resources required to import food, a high and increasing level of poverty (50 percent in 2003) resulting from overdependence on subsistence agriculture, limited access to off-farm employment, sluggish development in urban areas and skewed income distribution. As a result of poor transport and market infrastructure, food either does not reach those who need it most or reaches them at excessively high prices. In as many as 17 countries of the region, conflicts have constrained the flow of food, and, in some cases, it is claimed that food has even been used as a tool to ensure the submission of populations.

The prominent place of agriculture in economic development, poverty reduction and food security improvement in sub-Saharan Africa

Improving the food security situation in sub-Saharan Africa requires economic growth and higher income, but also immediate measures to ensure adequate access to food for the hungry, in line with the twin-track approach adopted by the three Rome-based agencies: the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD) and the World Food Programme (WFP). Access to food through social programmes can enable the vulnerable to seize economic opportunities that may arise from development initiatives.

To achieve the most direct reduction of poverty and hunger, priority must be given to economic growth in sectors where the poor work; that use factors of production the poor and

undernourished possess; that generate outputs they consume; and whose development occurs in areas where they live. Agriculture meets all these criteria, and has proved its ability - in Africa as well as elsewhere - to act as a lead sector for initiating rapid growth and broad-based economic development in the medium-term, particularly in less-advanced countries. It holds a prominent place in the economies of sub-Saharan African countries and constitutes the primary source of export earnings in all but the mineral-rich and developed countries (which are few), and is also the most important source of employment. It has proved to be more effective in reducing poverty than either the manufacturing or service sectors. It can stimulate the development of rural non-farm activities, which generate income for the poor if care is given that benefits are not reaped by the better-offs. Finally, it can also generate capital surplus, release labour for other sectors and provide a stable food supply at affordable prices, thus contributing to the competitiveness of the economy as a whole and acting as a major source of stimulus for the demand for goods and services of other sectors.

In most African countries, agriculture must necessarily be - as underscored in various high-level meetings, including the African Union Summit in Maputo in 2003 - the priority sector, particularly in the poorer countries, to achieve the first Millennium Development Goal (MDG) of hunger and poverty reduction and to significantly contribute to the achievement of the other MDGs. To be sustainable, agricultural development needs to be supported by broader development initiatives in the rural areas and other economic sectors.

The performance of agriculture in sub-Saharan Africa

Unfortunately, performance of agriculture in sub-Saharan Africa has not been up to expectations and has been characterized by ups and downs over the decades. But in recent years, annual growth has averaged around 3.9 percent. Contrary to the widespread perception that agriculture actually has performed worse after the implementation of structural adjustment programmes, evidence shows that sub-Saharan Africa's agriculture grew more than 1 percent faster since the mid-eighties than during the period between independence and the launching of the adjustment programmes. Additional analysis would be required to understand better who has benefited from this additional growth, and why this growth did not translate into a commensurate improvement of food security. The evidence is that while growth did take place, it did not really lead to improved food security and reduced poverty; the fact remains, however, that it has been possible, during the last decade, to lift agricultural growth at a level above the rate of population growth in the region as a whole, and much above in a few countries. This is encouraging trend as it shows that agriculture can be successful in sub-Saharan Africa. Production of cassava, exports of fruits and vegetables, tea production and exports, and fish catch stand out as sub-sectors where success cannot be denied. Moreover, in terms of growth, agriculture has performed relatively better, on average, than the rest of the economy of sub-Saharan Africa.

Constraints on agriculture development in sub-Saharan Africa

A long list of constraints have hindered the development of agriculture in the region, but comforting to know that if some of them can be resolved or alleviated, it will be possible to release at least part of the considerable growth potential of sub-Saharan Africa's agriculture. The first and foremost constraint on agricultural development – and on improved food security – is political unrest and armed conflicts. They have prevented farmers from producing, displaced populations, destroyed infrastructure and littered the countryside with land-mines. Poor governance, limited interest on the part of the powerful in the fate of the bulk of the population and weak institutional capacity has also contributed to poor policies that have proven incapable of addressing the challenges of agriculture and rural development. Brain drain, hasty implementation of inadequately worked-out reforms and urban bias also are prevalent in most of sub-Saharan Africa. In mineral-rich countries,

macroeconomic conditions have also been unfavourable to agriculture, undermining its competitiveness.

Agricultural growth can come from expansion of cultivated land, increased productivity, diversification into higher value-added products or a combination of all three. It can also come from reduction of wastage and post-harvest losses. Expansion of cultivated land in many sub-Sahara African countries has been constrained by physical access, insecure land ownership, limited access to animal and mechanical power and reduced availability of labour because of migration, competition from off-farm activities and communicable diseases such as HIV/AIDS. Productivity has remained low because of underutilization of water resources, limited fertilizer use, limited use of improved soil-fertility management practices and weak support services (research, extension and finance). Recurrent droughts, plagues and related increased risks have discouraged the investment that is indispensable for raising productivity. Malfunctioning and inefficient markets (largely due to a frail private sector in most countries), insufficient investment in infrastructure, high transportation costs, weak information systems and a poor regulatory framework have hampered proper remuneration of producers and deterred – indeed, incapacitated – them from investing and specializing in new and high-value products. Prices remain low and are highly volatile - and there are no mechanisms that can help minimize or share the risk borne by producers.

The need for more public support to agriculture

In the face of all these constraints, government budget cuts made in the wake of structural adjustment programmes have affected agriculture more than other sectors: in the 7 countries for which a detailed review was conducted, the share of agriculture in government budgets declined from around 5 percent in 1990/91 to 3.5 percent in 2001/01 - far below the target of 10 percent set in the Maputo Declaration made by the Heads of State and Government of the African Union (AU) in July 2003. This gravely affected public investment in agriculture and the capacity of public institutions to provide to the sector the public goods it needs so much, particularly as aid flows to agriculture and rural development simultaneously decreased and are concentrated in the better-off countries.

Small farmers and producers living in less-accessible areas have been hardest hit. It is as if both governments and their development partners, for their own reasons, were more inclined to help the rich and successful and leave the poor and hungry to their fate. Current flows of public resources to agriculture are insignificant compared to the needs identified in the framework of the Comprehensive Africa Agriculture Development Programme (CAADP) of the New Partnership for Africa's Development (NEPAD), prepared by the NEPAD Secretariat with the help of FAO. Today, more resources are allocated by developed countries to food aid than to agriculture and rural development, although analysis suggests that investing these resources in agriculture would contribute to reducing the need to resort to food aid in the future. Governments in some developed countries appear more inclined to listen to lobbies representing the interest of a minority, highly subsidized farmers producing large surpluses, than to take effective action to achieve the Millennium Development Goals. Public withdrawal is of serious concern given that the review of the problems facing sub-Saharan African agriculture demonstrates that their resolution will require considerable public support, both in terms of additional resources and policy reform. As a result, capital and productivity per agricultural worker are lower in SSA than in any other region of the world.

Learning from success stories

Despite unsatisfactory performance and a myriad of constraints to be overcome, there are success stories, which demonstrate that it is possible for sub-Saharan Africa’s agriculture to develop. These success stories and others elsewhere all point towards the importance of public involvement through adequate policies, appropriate institutions, development of

technology, establishment of infrastructure and strengthening of human resources to achieve agricultural and rural development. Political and economic stability, and a favourable policy and regulatory framework (including land reform and a legal framework for contracts) are among the prominent ingredients of success. Public services (technical advice, training of farmers and research) are essential to initiate change and development - although, with time, some of these services can progressively be handed over to producer organizations, which is already occurring in some countries. This evidence that public involvement was indispensable has been overlooked by decision-makers, both national and international, who have at times made public intervention the ultimate taboo: their responsibility for the victims of hunger and poverty cannot be challenged.

Technological change is often a trigger for development, provided markets are responsive and absorb additional production. This generally requires the establishment of market information systems and the promotion of agro-processing industries, but in all cases the existence of public infrastructure is essential, be it production (e.g. irrigation facilities) or transportation. It also demands the creation of, and support for, smallholder farmer organizations and professional organizations of other private-sector operators, as well as mechanisms to consult them before taking important decisions, so as to ensure the establishment of the trust and mobilization indispensable for investment.

Experience outside Africa shows that, although additional financial resources are important, policies, institutions, political will and general mobilization matter at least as much (for example, under the Marshall Plan). Stabilization of prices – another taboo - is an important factor for encouraging private investment (as in Asia) and for making of agriculture an engine of growth and a basis for a solid and diversified economic growth. Macroeconomic stability can also contribute to encouraging much-needed savings (as is seen in China), while development of human resources, science and technology are essential for the longer term. Investment in agricultural research has proven to be quite profitable everywhere in the world. Last but not least, all this can only occur if public organizations are efficient and their management is based on good governance, transparent practices and accountability.

The way forward

What should be done next? What are the priority policy and institutional reforms that need to be implemented? Where should resources be invested first?

Priorities will vary depending on specific country situations -– there is no one-size-fits-all solution - but some suggestions can be made here that apply to the region as a whole, whereas others are adapted to some of the typical situations met within the region.

The main broad priorities that appear essential for the region as a whole are five:

- Governments and their partners must spare no effort to resolve armed conflicts, achieve political stability, prevent future conflicts and adopt improved governance practices.
- Governments, in line with their commitments to Millennium Development Goals and the Right to Food, must design strategies and implement programmes for income generation and access to food.
- Government must reallocate resources from non-productive ministries to ministries dealing with productive sectors, and from subsidies benefiting the privileged to the provision of public goods for the benefit of all, while also improving public sector efficiency and revenue collection.

- Regional organizations have to promote peace and cooperation among countries in favour of food security and identify, formulate and raise funds for agriculture and rural development projects and programmes on the regional or subregional level.
- Development partners must step up their assistance to the less advanced sub-Saharan African countries and orient it, in priority, to programmes that support increased and more stable agricultural production to avoid future crises.

Recommendations adapted to specific situations are made for: (i) conflict countries; (ii) less advanced countries; (iii) resource-rich countries; and (iv) relatively more advanced countries.

(i) Countries in conflict or emerging from conflicts

These are the countries where food insecurity has reached extreme intensity and caused great loss of life. There are large groups of displaced people, and the countries often face the question of demobilization of soldiers. Destruction of physical and social infrastructure, as well as land-mines, are usually widespread, acting as insuperable constraints on development. Under such circumstances, four key priority areas for action can be recommended:

- Immediate measures to ensure adequate access to food for the hungry and for resettling refugees and demobilized soldiers, which include food distribution to vulnerable groups; distribution of agricultural implements and livestock; and funding involvement of the population in reconstruction activities.
- De-mining and rehabilitation/construction of rural infrastructure (roads and bridges, markets and storage places, irrigation facilities).
- Establishment of basic rural services (micro-credit, extension, seed multiplication, service centres and training) based on lean public organizations and contractual arrangements with NGOs, civil society and the private sector.
- Support for the creation of rural organizations.
- Establishment of an appropriate institutional and policy environment; stable macroeconomic conditions and legal system; a policy and regulatory framework favourable to local and private initiatives; and statistics and information systems on markets and food security.

(ii) Less advanced countries

These are countries which typically have a gross domestic product (GDP) below US$750 *per caput* and where agriculture represents more than 25 percent of GDP. The majority of countries in the region are part of this group, and they are generally characterized by very weak institutional capacity, a frail private sector and poorly operating markets. Four priority areas have been identified:

- Strengthening of institutional capacity, which includes: strengthening of public organizations (structure, staffing and other resources and management); improving stakeholder participation in economic decision-making and decentralization; and moving progressively to a programme rather than project-based approach to development.
- Policy framework, in particular: land tenure (security and safeguarding of rights); delineation of the role of the public sector, civil society and private sector; technical standards and norms for agricultural products; regulations for sustainable management of natural resources; measures to minimize possible disruptive effects of commercial imports and food aid; promotion of exports; enhanced participation in trade negotiations; and reliable statistics and food security information.
- Public investment (rural roads, marketplaces and storage facilities; irrigation infrastructure; soil fertility improvement and anti-erosion measures and research).

- Public services (extension; rural finance; capacity-building in business; support to the creation of professional organizations; combating plant and animal pests and diseases; partnership between public and private sector for delivery of services and inputs).

(iii) Resource-rich countries

Conditions in resource-rich countries are generally characterized by strong macroeconomic imbalances resulting from the overwhelming domination of the resource-based sector (e.g. mining, petroleum). Large exports from this sector result in a considerable inflow of foreign currency, which tends to lead to an overvalued local currency, rendering agriculture and other sectors non-competitive not only for export, but also in domestic markets. Growth in the resource-based sector thus generates stagnation in other sectors. These economies are generally characterized by high income disparities and widespread corruption, and are often prone to conflicts. The recommendations made for less-advanced countries or for countries emerging from conflict may also apply in the case of resource-rich countries. Three specific additional priority areas have been identified:

- Macroeconomic measures to reduce imbalances (sterilization of funds, public investment in non-resource sectors).
- Investment to increase competitiveness of agriculture and other non-resource-based sectors and ensure social stability and cohesion.
- Safety nets targeted at vulnerable groups to quickly eradicate food insecurity and undernourishment.

(iv) Relatively more advanced countries

These countries are characterized by a relatively high GDP (more than US$750 per caput), a diversified economy, an active private sector and functioning markets. The way forward towards development and food security in these countries should be based on two main principles: (i) reinforcement of the role of the private sector; and (ii) further diversification of the economy, while ensuring positive impact on poverty reduction and improved food security. More specifically, it is recommended to:

Reinforce the role of the private sector by reducing the role of the public sector, contracting out public functions, revising or establishing an investment code that protects private investors, simplify business establishment procedures and regulations, developing private financial *services* and public-private partnership to finance public goods.

- Promote economic diversification through research on non-traditional exports, promotion of national products and national investment opportunities abroad, gathering information on world markets, developing export and partnership opportunities, and investment in port and airport facilities.

These recommendations have been discussed at a high-level regional workshop attended by senior policy makers before finalization. It is expected that they will be progressively integrated by countries in their specifically tailored strategies and policies for agricultural development and food security, and will be fully reflected and given highest priority in the revised Poverty Reduction Strategy Papers (PRSPs) that are being developed in a number of countries. It is also hoped that the arguments and ideas put forward in this paper will be mirrored, after adaptation to the local context, in the Medium Term Expenditure Frameworks (MTEF) developed in SSA countries, and that additional resources will be mobilized progressively for agriculture and rural development in government budgets and focused on the priorities identified here.

Chapter 1: Setting the scene

1.1 Background and rationale

Today, almost 33 percent of the population in Africa, or close to 200 million people, are undernourished. This number has almost doubled since the late sixties, increasing roughly at the same rate as population growth. This indicates the paucity of successful strategies for poverty alleviation and improvement of food security.

Within Africa, the highest increase in the number of poor was observed in sub-Saharan Africa, where it rose by 72 million during the last decade. Furthermore, the region is susceptible to frequent food crises and famines, easily triggered by even the lightest of droughts, floods, pests, economic downturns or conflicts. Africa is the only continent where hunger is projected to worsen over the next two decades unless some drastic measures are taken. Over the years its agricultural exports have fallen while imports of food have surged and food aid interventions have become a regular feature of African news headlines.

Since independence, different development paradigms have been tested in Africa with varying but generally mediocre results. Boussard *et al.* (2005) wrote:

> "African countries taxed farmers and subsidized urban consumers; while at the same time they have generally under-invested in rural areas. ... the policies maintained during the 1960s and 1970s are indeed very rightly criticized ... Yet, this does not mean they were without any justification ... one should consider the rationale behind them. Relatively low farm gate price while international prices are high means profits for marketing boards and similar agencies. ... such profits were intended to be spent in increased investments ... in infrastructures ... which the market usually fails to secure, and **which by necessity must be funded by the State**." (Boldface added)

Unfortunately, this was seldom the case. The structural adjustment programmes implemented in the 1980s and 1990s marked a change in policies which implicitly taxed agriculture. Their economic impact has, however, been complex and multifaceted. Liberalization removed the deliberate price discrimination against the farming sector and provided incentives for more efficient resource allocation, but the resulting terms of trade for agriculture deteriorated as input prices grew faster than output prices. Moreover, privatization and imposition of stringent budget regimes on enterprises, while improving the incentive structure, caused vital agricultural support services to collapse - leading to important disruptive and long-term effects for production, particularly in the smallholder sector.

It is a widely held view that the decreasing level of public support for agriculture and allied services, in the absence of private efforts and resources to compensate, has led to undue dependence on food imports and food aid to meet growing domestic food requirements. This phenomenon must be seen in light of the equally strong and widely shared view that SSA countries have the capacity to produce enough food to meet their domestic needs, or to increase their agricultural exports and generate sufficient foreign exchange to enable them to import. Instead, a number of African countries, many of them in East and Southern Africa, have been allocating a considerable share of their meagre foreign exchange resources to food imports. This study is therefore prompted to redress the disparities between the often positive political pronouncements and the inadequate public sector support provided to agricultural development in SSA countries.

1.2 Context and objective of the study

At the invitation of the NEPAD Steering Committee, FAO, in close collaboration of the NEPAD Secretariat, prepared in 2002 the Comprehensive Africa Agriculture Development Programme (CAADP), "to present broad themes of primary opportunity for investment to reverse the crisis situation facing Africa's agriculture, which has made the continent import-dependent, vulnerable to even small variations of climate, and dependent to an inordinate degree on food aid" (NEPAD, 2002). In July 2003, the Heads of State and Government of the African Union (AU) considered the CAADP and resolved, *inter alia,* to "revitalize the agriculture sector, implement as a matter of urgency the CAADP, adopt sound policies for agricultural and rural development and committed themselves to allocating at least 10 percent of national budgetary resources for their implementation within five years" (AU, 2003).

The above declaration is indeed a significant milestone, demonstrating a clear political commitment by the African heads of state and governments towards addressing the pervasive food insecurity and poverty in Africa. Considering that agriculture provides the livelihood of a large majority of the population, one could argue that it should obviously have priority in the allocation of public resources. However, translating this commitment into political action is a great challenge given the following factors:

- the paucity of resources available to most SSA countries compared with the daunting level of resources required for development in agriculture and other priority sectors (especially health and education), and the possible perception among some of those who hold the public purse that agriculture is a poor engine for growth and fiscal revenues;
- the general perception that the performance of agriculture in SSA has been poor, particularly in the context of globalized markets and the dominance in the region of small-scale farming systems;
- the perception of limited "absorptive capacity" of most African countries to make use of development assistance in agriculture;
- the fact that, due to a lack of confidence in the potential of agriculture for poverty reduction, the complexity of agriculture development programmes and competing demands on limited resources, the greater emphasis on direct budget support and sector-wide approaches has tended to reduce public sector allocation to agriculture;
- the decline or disappearance of national development banks and the difficulties met with in establishing a well-performing financial sector. (NEPAD, 2004; FAO, 2001)

The objective of this study is, therefore, to provide sound arguments for ministers in charge of agriculture and rural development in SSA to justify with fellow ministers, especially the ministers of finance, why the commitment made in Maputo by the African Union heads of state and government in July 2003 to allocate increased resources to agriculture and rural development is the right one and should be realized.

1.3 Components of the study

The study consists of the following four major components:

(a) Preparation of a background document explaining the theoretical and empirical issues underpinning the rationale for increased public support to agricultural development in the African context, and summarizing the contemporary global debate on the issue.

(b) Preparation of ten country case studies – Chad, Democratic Republic of the Congo, Ethiopia, Ghana, Kenya, Malawi, Mali, Nigeria, Tanzania and Zambia – taken as a representative, even if imperfect, sample for central, East, West, and Southern Africa.

(c) Preparation of a main report (the current document), that integrates highlights from the background document and the findings from the country case studies, supplemented by further in-depth analysis entailing extensive literature review, compilation of relevant statistical information from FAO, World Bank, ADB, UNDP, ECA, IMF and others, and the authors' reflection on their extensive field experience. This in-depth analysis and additional work aimed at ensuring that the main report reflects the situation in SSA as a whole.

(d) Organization of two subregional workshops (one in western/central Africa, one in southern/eastern Africa) involving the participation, *inter alia,* of senior African policy-makers, representatives of AU/NEPAD Secretariat, regional economic organizations, bilateral and multilateral development partners and other stakeholders. These meetings will provide fora for communicating and discussing the findings and recommendations of the study.

The analysis pursued in the different chapters is pegged at two levels: by region (central, East, West and Southern Africa) and by country. Where appropriate, comparative analysis of variables such as food production per capita, prevalence of poverty, percentage of irrigated agriculture, fertilizer application and yield have been made between the four regions in SSA and between the SSA regions and Southeast Asia, Latin America and the Caribbean.

1.4 Structure of the report and target audience

The report is divided into seven chapters. Following this introductory chapter, Chapter 2 analyses the prevailing food security and nutrition situation in SSA, focusing mainly on the issues of availability and access. It examines the trend of food intake and sources of food supply - domestic production, commercial imports and food aid - and the economic, physical and socio-political factors affecting food access at the national and household levels.

Chapter 3 reviews and analyses the main conceptual arguments as well as the existing empirical evidence on the role of agriculture and the rural sector in addressing poverty and food insecurity in the context of SSA. The purpose of this chapter is to establish whether agriculture can provide a viable option in the short- to medium-term, as well as whether it has the potential of fuelling a long-term process of broad-based economic development.

Chapter 4 analyses the significance and performance of the agricultural sector in SSA in terms of contribution to GDP and export earnings, and by principal subsectors. The conceptual and empirical analysis aims to answer the question that naturally follows from Chapter 3, i.e. "If agriculture is the immediate strategic option, then is it playing its expected role of becoming an engine for future broad-based economic growth?"

Chapter 5 reviews the critical constraints impeding agricultural development in SSA and highlights the opportunities that SSA countries could take advantage of. It also identifies and discusses the need for more effective public support of agricultural and rural development.

Chapter 6 discusses selected success stories from Africa and other regions. The chapter briefly examines the main features of these successes and the factors behind them, highlighting the key lessons that can be drawn by policy-makers in Africa. The chapter attempts to demonstrate, based on concrete examples, that there are good prospects for improved agricultural performance in the majority of the SSA countries. It also strives to indicate that agriculture-led economic development is possible, provided that the right policy environment is created and the public sector is reengaged to facilitate and complement the private sector rather than substitute for it.

The last chapter outlines, without being prescriptive, the main components of broad-based strategic options for addressing the pervasive poverty and food insecurity documented in

Chapter 2 and the constraints identified in chapter 5. The attempt is made to structure recommendations on the basis of a typology of countries, based on the analysis carried out (particularly in Chapters 2, 4 and 5). This should help to prioritize and sharpen the recommended measures. The chapter also takes into account the lessons learned within and outside Africa, and makes a distinction among the recommendations directed at governments, development partners, the African Union, the NEPAD Secretariat and regional economic organizations.

Chapter 2: Food security in sub-Saharan Africa

2.1 Introduction

The World Food Summit Plan of Action defines food security in the following terms: "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 1996). Food security comprises four dimensions: (i) adequacy of food availability; (ii) stability of supply; (iii) physical and economic accessibility of food; and (iv) quality and safety of food.

An analysis of the number of the undernourished in sub-Saharan Africa (SSA)[1] shows a widespread undernourishment in the region and an increase in absolute numbers by about 20 percent between 1990-1992 and 2000-2002 (FAO, SOFI 2004), when the total estimated number of undernourished in the region increased from 170.4 million to 203.5 million persons. Over the same period, the number of people undernourished in the entire world decreased from 823.8 million to 814.4 persons, the bulk of the decrease taking place in Asia (from 569.2 to 519.0 million).

In 2000-2002, the proportion of the undernourished in the population was more than 35 percent in 15 out of the 40 SSA countries for which estimates have been made, while only 12 countries (including South Africa) had less than 20 percent of their population undernourished. UNICEF estimates that 39 and 29 percent of children of less than 5 years were stunted and underweight, respectively, over the 1995-2002 period (UNICEF, 2003). It is also estimated that over 45 percent of undernourished people in Africa are less than 15 years old (WFP, 2005).

The evolution of the problem varied in different parts of SSA. West and Southern Africa have seen their number of undernourished remain relatively stable during the 1990s, while the situation worsened considerably in Central and East Africa. In seven SSA countries (Angola, Chad, Congo, Ghana, Malawi, Mozambique and Namibia) the proportion of the undernourished substantially decreased, while others have gone through a deterioration process (e.g. Burundi, Democratic Republic of the Congo, Eritrea and Sudan). About 80 percent of the increase in the proportion of the undernourished is observed in conflict countries, where famine has been widespread.

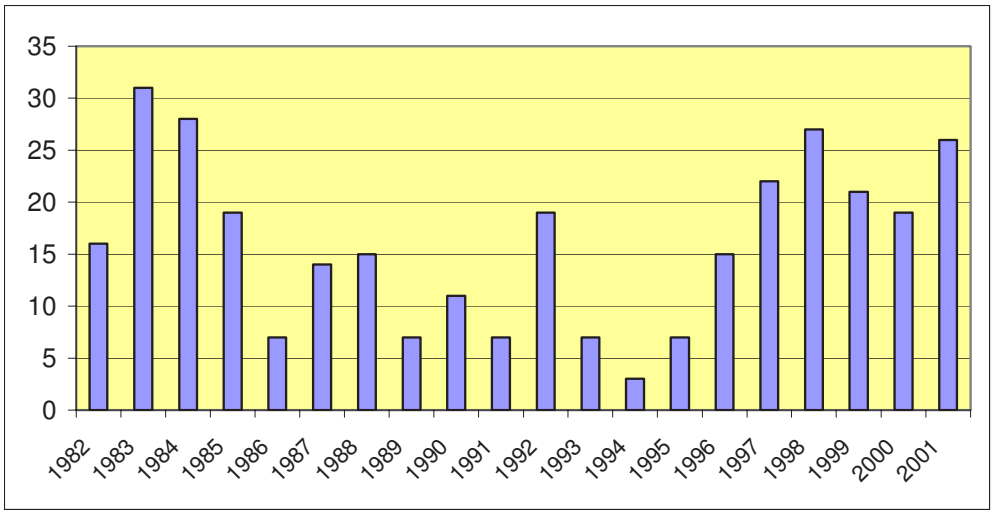
The type of food insecurity observed in SSA is a combination of widespread chronic food insecurity, resulting from continuing or structural poverty, and transitory emergency-related food insecurity, which occurs in periods of intensified pressure caused by natural disasters, economic collapse or conflict. Since 1998, there have been around 20 food emergency cases every year in Africa (see Figure 2.1). This is considerably higher than what was observed during the 1990s. In 2003-2004, out of the 35 countries in the world facing serious food emergencies requiring international assistance, 24 were located in SSA. In East Africa alone, 13 million people are affected (FAO, SOFI 2004).

The overwhelming majority of the emergency cases observed are related to natural calamities, followed by armed conflicts and political unrest. For example drought and flood situations account for almost 80 percent of cases observed in the world in 2002 (FAO, SOFI 2003). Although the causality appears self-evident, analysis of specific cases shows that the magnitude of the crises, if not their existence, is largely due to the programmes and policies implemented. Some countries in Southeast Asia and Latin America have managed to mitigate the impacts of natural disasters by developing and implementing policies that

[1] Excluding South Africa.

enabled them to minimize the effects of extreme natural conditions, especially on the most vulnerable segment of their population. This stands in contrast to earlier decades, when they experienced dramatic famines following natural catastrophes.

Figure 2.1: Number of food emergency cases in Africa (1982-2001)



Source: Sciences, LLC

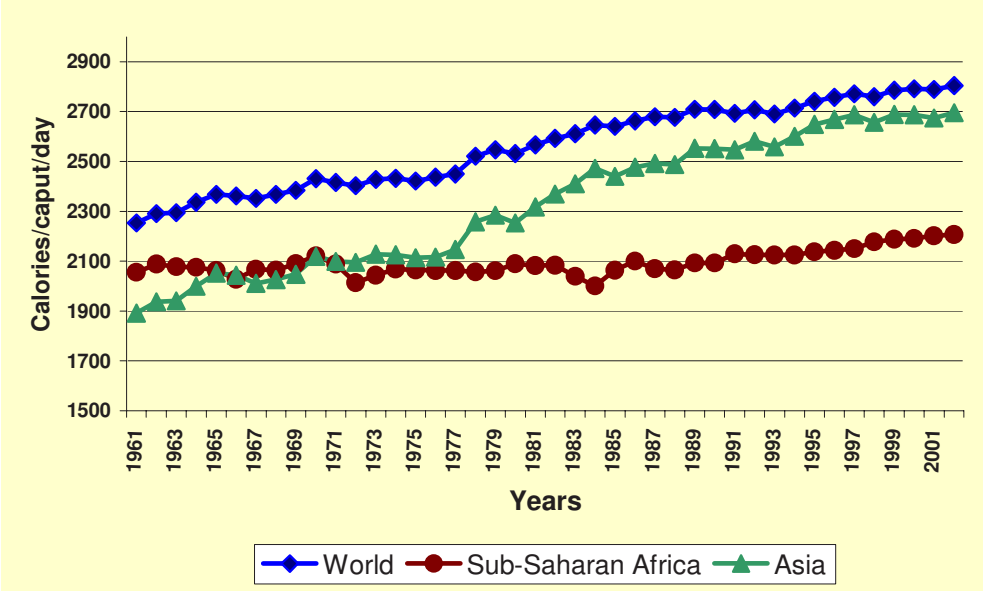
The food security situation in a given locality can be assessed in a number of ways. FAO developed a methodology to evaluate the number of undernourished persons, which takes into account the amount of food available per person in a given country and the extent of inequality of access to food. This approach is reinforced by the emerging consensus that food insecurity in SSA is a product of both limited food *availability* and restricted *access* to food. Therefore, in this paper food security is analysed mostly from the point of view of availability and accessibility, but variability and the issue of nutritional utilization of food will also be taken into consideration.

2.2 Food availability in sub-Saharan Africa

Although it is only an imperfect indicator of the evolution of food security, as it does not take into account the inequality of access to food, the *average daily calorie intake per person* provides some indication of overall changes in the food situation of a country.

In SSA, cereals, and roots and tubers are the main source of calories, representing 46 and 20 percent of total intake respectively, and this share has been unchanged since the 1960s. Figure 2.2 clearly shows that SSA has been lagging behind the rest of the world, particularly Asia, where the level of average food intake has grown substantially over the last 40 years. In the case of Africa, this level stagnated below 2 100 cal/per caput/day until the early 1990s; since then some improvement has been observed.

Figure 2.2: Average daily level of food intake per caput in selected regions



Source: FAOSTAT data, 2004

However, the improvement observed since 1990 has not been uniform throughout the region (see Table 2.1). Out of the 44 SSA countries for which data is available[2], 24 countries see a positive trend of intake by more than 0.5 percent per annum – the best performers being Chad, Djibouti, Ghana and Mozambique. In 15 countries a negative trend was observed, with the worst performance seen in Democratic Republic of the Congo, Burundi and Guinea-Bissau. The current intake level in countries where a long-term negative trend is observed is usually less than 2 200 cal/per caput/day compared with the minimum acceptable average level of 2 300 cal/per caput/day recommended by FAO. Those countries where a positive trend is observed show much higher levels. The lowest intake levels observed are in Burundi, Democratic Republic of the Congo and Eritrea, while the highest levels can be found in Cape Verde, Mauritius, Mauritania and Nigeria.

The countries with negative food security trends are mostly located in East and southern Africa, and many of these are or have been involved in conflicts or civil unrest. West Africa, on the other hand, has benefited from relatively good climatic conditions during the 1990s (Keyser *et al.*, 2003).

[2] Excluding South Africa.

Table 2.1: SSA country-level evolution of daily calorie intake per caput

Percent annual rate of growth of daily intake per caput (period average)	Period 1961-2002		Period 1990-2002	
	Less than 2300 cal/caput in 1990	**More than 2300 cal/caput in 1990**	**Less than 2300 cal/caput in 2002**	**More than 2300 cal/caput in 2002**
Highest increase: More than 0.5 percent p.a.*	Burkina Faso, Seychelles, Djibouti, Sudan**	Cape Verde, Mauritius, Mauritania, Nigeria, Lesotho, Gabon, Benin,	Mozambique***, Chad, Djibouti, Angola, Ethiopia, Malawi, Congo, Niger, Namibia, Kenya, Cameroon, Central African Republic	Cape Verde, Mauritania, Ghana, Lesotho Gabon, Côte d'Ivoire, Benin, Seychelles, Sao Tome, Uganda, Guinea, Togo,
Some increase: Less than 0.5 percent p.a.	Ghana, Bissau, Guinea, Botswana, Tanzania, Mali, Niger, Sao Tome, Cameroon, Togo	Swaziland, Côte d'Ivoire, Gambia	Zimbabwe, Sudan, Mali	Mauritius, *Nigeria*, Burkina Faso
Some decrease: Less than 0.5 percent p.a.	Mozambique, Guinea, Namibia, Ethiopia, Rwanda, Sierra Leone, Angola, Congo, Comoros, Kenya, Liberia, Chad, Malawi, Eritrea, Zimbabwe, Zambia	Uganda, Senegal	Madagascar, Senegal, Zambia, Gambia, Tanzania, Rwanda, Sierra Leone, Botswana	Swaziland
Major decrease: More than 0.5 percent p.a.	Madagascar, Central African Republic, DR Congo, Burundi		Eritrea, Liberia, Comoros, Guinea Bissau, Burundi, DR Congo	

* p.a.: per annum.
** in each cell, countries are ranked by decreasing level of calorie intake per caput.
*** Countries in italics have seen their absolute number of undernourished decrease over the period.

Source: authors based data on FAOSTAT, 2005 and FAO, SOFI 2004.

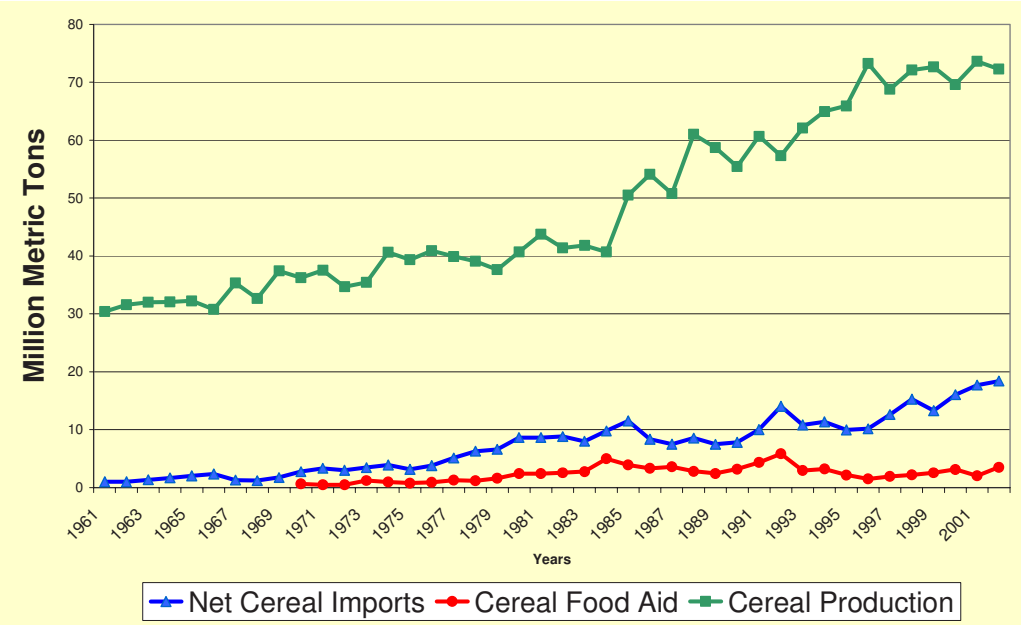
2.2.1 Source of food supply in sub-Saharan Africa

Food supply in SSA originates from three sources:

(a) domestic food production
(b) imports
(c) food aid

As indicated in Figure 2.3, imports and food aid have grown in importance as sources of supply over the years. The share of imports in total cereal consumption rose from around 5 percent just after independence to about 25 percent in recent years. Food aid, on the other hand, increased rapidly in the eighties, reaching 10 percent of total cereal consumption. Although its importance has declined since then, it still accounts for close to 5 percent of the total cereal consumption in the region.

Figure 2.3: Cereal production, imports and food aid in sub-Saharan Africa*



Source: FAOSTAT data, 2004

*Food aid data only available separately after 1988. Import data are inclusive of food aid receipts.

(a) Food production

As discussed in Chapter 3, food production in SSA grew in value at an estimated rate of about 2.4 percent per year between 1961 and 2003. This growth rate is lower than the annual rate of population growth (2.8 percent). Consequently, production per caput has decreased (by about 0.4 percent per annum) over the period. It is, however, worth noting that after an initial period of growth (1961-1971), food production per caput fell throughout the 1970s and the first half of the 1980s. Subsequently, some recovery was observed up to the turn of the century, when production per caput again fell (see Figure 2.4).

This evolution contrasts with what has been observed at the world level or in the case of Asia, where production per caput has steadily grown at an average annual rate of about 1.6 percent throughout the period (performance of food production and agriculture in general in SSA is discussed in greater detail in Chapter 4).

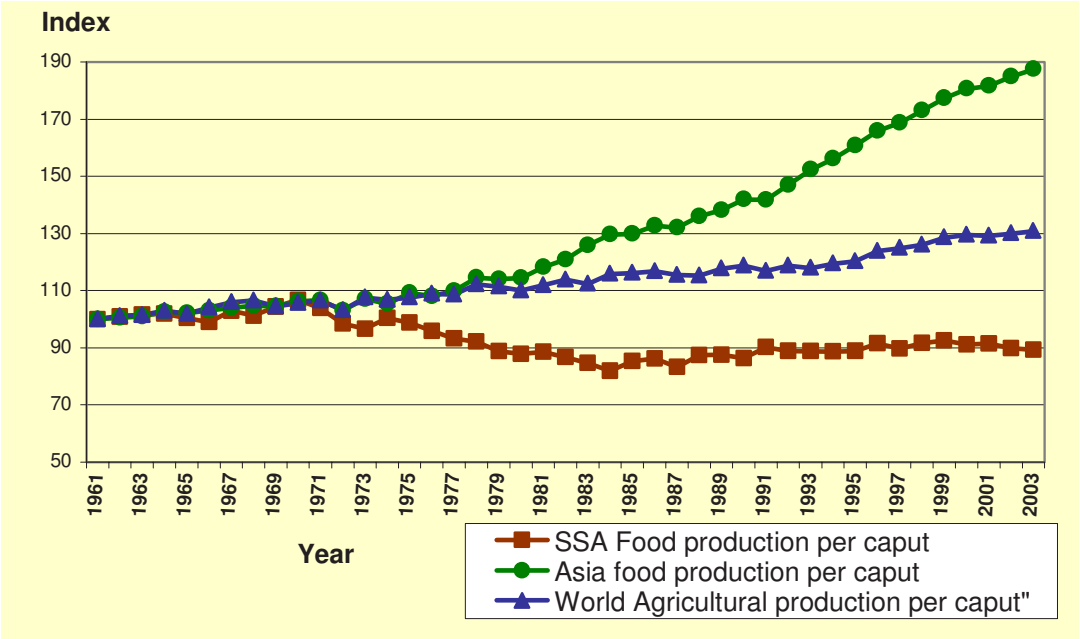
(b) Food imports

SSA was a net food exporter in the early years after gaining political independence. It was almost self-sufficient in cereals, even exporting small quantities of maize and sorghum. Net cereal imports represented only about 5 percent of total food consumption. Main exports were oil crops (groundnuts and palm kernels) and vegetable oil, coffee and cocoa, sugar and some cassava. While cereal imports represent certain years almost a quarter of the total consumption, imports of roots and tubers are minimal (less than 1 percent of the total).

FAOSTAT data show that over the years, net cereal imports grew rapidly, particularly in the early 1980s, reaching a record level of more than 11.5 million tonnes in 1985, or 25 percent of total cereal consumption. This growth trend continued throughout the 1990s: SSA net

cereal imports reached about 18 million tonnes in 2001 and 2002, or 24 percent of total cereal consumption. It is interesting to note that wheat (which can only be grown in selected locations in the region) has constituted roughly half of cereal imports throughout the last 40 years, and rice about one third. Maize, which was an export commodity in the 1960s, now represents almost 15 percent of cereal imports. Other traditional import areas, such as milk and vegetables, also grew. Milk imports increased more than fivefold between 1962 and 2002, and imports of certain meat products (such as frozen chicken parts) have increased extravagantly[3]. Over time, traditional areas of export dwindled. For example, sugar exports, which had reached around 300 000 tonnes in the early 1970s (around 15 percent of consumption) collapsed during the 1980s; sugar imports are now more than 2.5 million tonnes per year, or more than one third of total consumption. Similarly, vegetable oil, of which around 0.5 million tonnes - more than half of consumption - had been exported annually in the 1960s, is now imported at an annual level of about 1.5 million tonnes, equivalent to 30 percent of consumption. Among other traditional food exports, cocoa has performed best, recovering in the 1990s from the setback observed in the late 1970s and 1980s to reach record exports of 1.9 million tonnes at the turn of the century.

Figure 2.4: Evolution of food production per caput in selected regions



Source: FAOSTAT data, 2004

(c) Food aid

The bulk of food aid to SSA countries is constituted by cereals, which represent approximately 90 percent of the total volume. In the past, more than half of food aid was provided through programme or project food aid. Nowadays this type of food aid is relatively less important, and emergency food aid instead constitutes the greater part of the food distributed. For example, total food aid delivered to SSA oscillated between

[3] Rhissa and Guerne Bliech quote the case of Cameroon, where imports of frozen chicken increased from 978 tonnes in 1996 to 22 154 tonnes in 2003. They attribute this change to high subsidies and illustrate the negative impact on local production and the health of consumers because of the interruption of cold chain (Rhissa and Guerne Bliech, FAO 2005).

2.6 million tonnes in 1996 and 5.2 million tonnes in 2003 (WFP, INTERFAIS, 2005). Total delivery of programme and project food aid was slightly above 1 million tonnes (20 to 30 percent of total delivery, depending on the year).

Food aid to SSA countries has considerably increased since the 1970s, when it was generally below 1 million tonnes per year, or 2 to 3 percent of total food consumption. The 1980s saw first a doubling and then a tripling of food aid delivery, which came to make up as much as 10 percent of total food consumption in the region. Food aid to the region was exceptionally high in 1992 when it reached 6 million tonnes - almost equivalent to commercial imports. Since 2000, delivery has continued at a level of about 3 million tonnes, with some yearly variations, or 15 percent of commercial imports.

2.2.2 Comparative analysis of sources of food supply at the country level

The general picture of food supply provided above masks contrasting situations at the country level, where the share of food aid in total food supply can vary considerably (see basic data in tables 2.2a and 2.2b and map in figure 2.5)[4]:

- The 24 countries with the highest increase of calorie intake per capita identified in table 2.1 are countries where total cereal consumption has grown faster than cereal production. The gap between the two was filled by commercial imports (on average, 18 percent of total cereal consumption) and aid (7 percent). Reliance by this group on imports (including food aid) has been progressively higher over the years: 4 percent in the 1960s, 17 percent in the 1970s and 1980s and 25 percent in the 1990s. Meanwhile, the share of food aid has remained stable at around 7 percent since the early 1970s. Three main sub-groups can be distinguished here, which show a contrasting picture:
    - Those countries that rely more than 50 percent on external supply (Group 1: Angola, Cape Verde, Congo, Djibouti, Gabon, Lesotho, Mauritania, Namibia, and Seychelles) have had stagnant production. In 2000-2002, the total number of undernourished in this group had decreased by 0.8 million from a total of 8.2 million in 1990-1992. Agriculture usually accounts for a small part of GDP in these countries, and they often rely on other sectors such as mining and services. In some, remittance from abroad is significant.
    - Those countries that mainly rely on domestic supply have seen growth in cereal production:
        - One group (Group 2: Benin, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Ghana, Guinea, Kenya, Niger, and Togo), succeeded in reducing its number of undernourished by 4.6 million since 1990-1992, out of an initial total of 31.2 million (Ghana alone has experienced a reduction of 3.3 million). This group has complemented its domestic supply mostly by commercial imports. Group 2 has seen cereal production grow on average by 2.1 percent since 1961, and by 3.1 percent since 1990.
        - Group 3 – Ethiopia, Malawi, Mozambique, Sao Tome and Principe and Uganda – where the number of undernourished decreased by 5.8 million since 1990-1992, supplemented domestic supply mostly through food aid. The average growth of cereal production was 1.7 percent since 1961 and 5.3 percent since 1990. The importance of agriculture in the economies of these countries has increased (on average, near 50 percent of GDP in the 1990s). The relatively rapid recent growth of cereal production can largely

[4] Detailed data for individual countries are available in Appendixes 2.1 and 2.2.

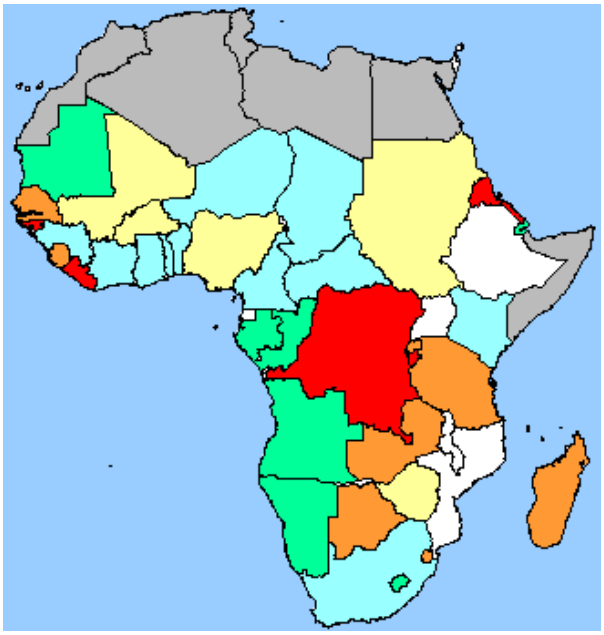
be explained by recovery after war or civil unrest, and would need to be continued to ensure sustainability of improved food security, as food aid is likely to decline in the future.

- In the group of countries where some increase of calorie intake per capita occurred (Group 4: Burkina Faso, Mali, Mauritius, Nigeria, Sudan and Zimbabwe), the number of undernourished slightly increased (by 1.7 million) since 1990-1992, reaching an estimated 31.1 million people in 2002. The average level of cereal intake per capita has been stable or slightly improving. The growth of cereal production – leaving Nigeria aside – has been irregular, with relatively rapid growth in the 1980s and 1990s but tapering off after 1997, with a corresponding increase in imports to compensate for sluggish domestic production. Food aid, which was quite important from the mid-1980s to the mid-1990s, is now almost negligible, although its importance has recently increased in Sudan and Zimbabwe. Overall economic growth has been very slow (less than 2 percent on average during the 1990s). The evolution in Nigeria has been similar: cereal production grew rapidly from the late 1970s to the mid-1990s and has been almost stagnant since, with imports compensating for the lack of additional domestic production.

- The group of countries where there has been some decrease of calorie intake per caput has experienced a worsening food situation (Group 5: Botswana, Gambia, Madagascar, Rwanda, Senegal, Sierra Leone, Swaziland, Tanzania and Zambia). The number of undernourished has grown by 10.3 million since 1990-1992. In this group cereal production has been very variable and overall has declined since 1990 (particularly in Zambia), while imports grew considerably, especially since 2000. In this group, Tanzania stands out as quite different in that its production grew, although very erratically in the 1990, and net imports were rather stable; however, the estimated number of undernourished increased by nearly 6 million since 1990-1992. Overall for this group, economic growth has been roughly at the level of population growth.

- In the last group of countries, there has been a major decrease in calorie intake per caput (Group 6, consisting of Burundi, Comoros, Democratic Republic of the Congo, Eritrea, Guinea-Bissau and Liberia). These countries have all been affected by conflict. The number of the undernourished in this group has more than doubled since 1990-1992, to reach a total of 44.1 million – an increase of 26.3 million, of which 23.3 million are in the Democratic Republic of the Congo. Cereal production in this group has at best stagnated, with annual production increasing a dismal 0.5 percent during the 1990-2002 period. These countries are highly reliant on imports (including food aid), which represented more than 30 percent of total cereal consumption since the 1960s. Food aid has accounted for nearly 18 percent of total cereal consumption since 1990. This group has seen a serious shrinking of its overall economy as well.

Figure 2.5: Map of groups of countries



Legend:

- Countries relying more than 50% on imports
- Countries relying more on domestic supply complemented by imports
- Countries relying more on domestic supply complemented by food aid
- Countries with a stagnating food security situation
- Countries with deteriorating food security
- Countries with major decrease of calorie intake

Table 2.2a: Indicators of food intake, undernourishment, growth and overall economic condition in sub-Saharan Africa

Groups/Countries	Calorie intake per caput in 2002*	GDP per caput in 2002	Debt per caput in 2002 (in US$)	Number of undernourished		Number of countries on track with WFS objective	Percent annual GDP growth (1990-92 to 2000-02)	Share of agriculture in		Percent share of agriculture in aid over the 1990-2002 period	Average yearly foreign aid per caput over 1990-2002 (in US$ of 2002)
				In 2000-02 (in millions)**	Variation between 1990-92 and 2000-02 (in millions)**			1980s	1990s		
Group 1: Angola, Congo, Cape Verde, Djibouti, Gabon, Lesotho, Mauritania, Namibia, and Seychelles	**2 465**	**1 220**	**85**	**7.4**	**-0.8**	**4**	**2.6**	**15**	**13**	**4.9**	**5.8**
Group 2: Benin, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Ghana, Guinea, Kenya, Niger and Togo	**2 309**	**555**	**31**	**31.2**	**-4.5**	**2**	**2.9**	**29**	**30**	**6.0**	**4.4**
Group 3: Ethiopia, Malawi, Mozambique, Sao Tome and Principe and Uganda	**2 155**	**230**	**15**	**48.2**	**-5.3**		**5.4**	**41**	**49**	**4.8**	**4.2**
South Africa	2 956	3 165	47	-	-		2.2	4	4	1.0	1.2
Group 4: (without Nigeria) Burkina Faso, Mali, Mauritius, Sudan and Zimbabwe	**2 228**	**1 190**	**32**	**20.1**	**2.5**	**1**	**4.7**	**30**	**33**	**6.0**	**2.9**
Nigeria	2 726	379	23	11.0	-0.8		2.9	32	33	4.0	0.4
Group 5: (without Tanzania) Botswana, Gambia, Madagascar, Rwanda, Senegal, Sierra Leone, Swaziland and Zambia	**2 118**	**518**	**31**	**20.0**	**4.6**		**2.9**	**22**	**19**	**5.0**	**6.1**
Tanzania	1 975	204	18	15.6	5.7		5.7	46	48	5.0	4.8
Group 6: Burundi, Comoros, Democratic Republic of the Congo, Eritrea, Guinea-Bissau and Liberia	**1 701**	**100**	**18**	**44.1**	**25.7**		**-3.3**	**32**	**33**	**3.7**	**1.6**

Source: authors' computations based on FAO SOFI 2004 and FAOSTAT data 2005, World Bank, IMF, OECD and UNAIDS.
* for 45 countries ** for 40 countries only

Table 2.2b: Indicators of cereal production, imports and food aid in sub-Saharan Africa

Groups/Countries	Annual rate of growth of cereal production		Percent of net imports in consumption (including food aid)			Share of food aid in consumption		
	1961-2002	1990-2002	1970s	1980s	1990s	1970s	1980s	1990s
Group 1: Angola, Cape Verde, Congo, Djibouti, Gabon, Lesotho, Mauritania, Namibia and Seychelles	**0.0**	**4.4**	**50.3**	**70.3**	**79.1**	**7.9**	**17.9**	**14.3**
Group 2: Benin, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Ghana, Guinea, Kenya, Niger and Togo	**2.0**	**3.7**	**10.3**	**21.6**	**24.7**	**3.1**	**4.4**	**2.7**
Group 3: Ethiopia, Malawi, Mozambique, Sao Tome and Principe and Uganda	**1.7**	**5.3**	**5.1**	**12.2**	**15.7**	**2.1**	**11.0**	**10.0**
South Africa	1.3	2	-21	-12	5	-	-	-
Group 4: (without Nigeria) Burkina Faso, Mali, Mauritius, Sudan, and Zimbabwe	**2.4**	**1.4**	**1.3**	**8.8**	**10.8**	**3.6**	**9.6**	**3.4**
Nigeria	3.3	1.4	14.0	15.0	17.0	0.1	0.0	0.0
Group 5: (without Tanzania) Botswana, Gambia, Madagascar, Rwanda, Senegal, Sierra Leone, Swaziland and Zambia	**1.0**	**-0.8**	**27.2**	**35.4**	**38.4**	**3.6**	**7.8**	**6.0**
Tanzania	4.2	1.3	10.9	9.4	9.3	4.6	5.0	1.3
Group 6: Burundi, Comoros, Eritrea, Guinea-Bissau, Liberia and Democratic Republic of the Congo	**3.0**	**0.5**	**41.5**	**37.7**	**37.1**	**4.0**	**10.1**	**13.0**

Source: authors' computations based on FAO SOFI 2004 and FAOSTAT data 2005, World Bank, IMF, OECD and UNAIDS.

2.3 Food access

Following the work of Amartya Sen (1981), the critical distinction between the availability of food and people's access to food has been widely recognized. Sen showed that people's entitlements to food arise from their assets, stores, networks and skill, from their own production, from selling their produce and labour, and from transfers. People are food insecure when the combination of entitlements is not sufficient to enable the individual or household to acquire the minimum food to meet their requirements.

Not only in sub-Saharan Africa but globally, the key determinants of food access are physical, economic, political and socio-cultural. The following sections discuss these factors and analyse their relative significance access in SSA.

2.3.1 Economic access

National level

From a national food security perspective, a country's capacity to import sufficient food to meet the requirements of its population is determined by its ability to generate sufficient foreign exchange from exports or by other means. However, a closer look at the export performance of many SSA countries and of the region as a whole reveals a generally disappointing picture. The region's balance of trade has been consistently negative, hovering at around 12 percent of GDP throughout the 1990s, although there were some improvements in some regions and deterioration in others. The overall trend of SSA exports has not been encouraging, as the share of SSA in international merchandise trade fell from 3.7 percent of total world merchandise exports in 1980 to only 1.5 percent in 2002 (UNCTAD, 2005)[5].

Table 2.3: Trade balance in Africa (as percent of GDP) from 1990-1992 to 1998-2000

	1990-1992			1998-2000		
Subregion	Imports	Exports	Balance	Imports	Exports	Balance
Central Africa	35.4	-22.2	-13.2	44.6	35.2	-9.4
East Africa	41.9	-25.8	-16.1	45.2	28.9	-16.3
Southern Africa	51.4	-35.5	-15.9	54.1	39.1	-15.0
West Africa	35.8	-25.3	-10.5	40.8	28.6	-12.2
All Africa	39.8	-27.3	-12.5	44.7	32.4	-12.3

Source: *African Development Bank Report, 2004*

The composition and diversification of SSA exports is usually narrow: over 80 percent of export earnings are from the sale of a few primary commodities, whose price relative to manufactures has been deteriorating at approximately 0.5 percent per year. For example, according to the African Development Bank, 100 percent of Uganda's export receipts came from primary commodities, and a further 16 countries were dependent on primary commodities for over 90 percent of their export revenues (ADB, 2004).

Most SSA countries are facing a serious deficit in their current accounts. Statistics show that the only countries, for which data is available, that showed at least one positive current account balance between 1999 and 2003 were Benin, Côte d'Ivoire and Namibia. To these three countries, Congo, Gabon and Nigeria could be added, based on partial data available. The region's debt increased regularly beginning in the early 1970s, and reached a record level of more than US$180 billion in 1995. Since then, it has somewhat declined – probably as a result of debt cancellation - but remains at more than US$160 billion. The ratio of debt to GDP is, not surprisingly, higher in the poorer countries (18 percent on average), with extreme levels of indebtedness in Guinea-Bissau, Congo, the Democratic Republic of the Congo Liberia, Sao Tome and Sierra Leone.

Although SSA countries are predominately agrarian, producing mainly food crops, in 2001 food imports to the region on average represented more than 20 percent of the total import bills in 7 out of 25 countries reviewed (World Bank, 2005). The share of food imports was particularly high in Niger (44 percent) compared to the average level in SSA, estimated at around 10 percent. The data also suggest that the share of food imports in total imports has remained relatively stable over time; this implies that a substantial part of available hard currency is spent on food imports, thereby crowding out imports of capital goods for investment in production and rural development.

Reliance on food imports is not a sustainable option for food security in SSA, given the region's limited capacity to generate sufficient foreign exchange and given the region's

[5] UNCTAD, 2005, *Handbook of Statistics.* (Available at http://stats.unctad.org.)

comparative advantage in agriculture, particularly food production, which has been established in numerous county-level analyses conducted by FAO, the World Bank and other agencies.

Household level

Economic access to food at household level implies that individuals or households have sufficient income and other entitlements to acquire food for an adequate diet. Poverty incidence, GDP or private expenditure per caput, income distribution and rural employment are some of the indicators that are used as proxies to assess economic access to food at the household level. By 2001, almost half of sub-Saharan Africans lived in extreme poverty, compared to one third of the population in South Asia. Though there are wide variations between countries and regions within SSA, over the course of recent decades, the overall trend has been one of deterioration (see Table 2.4).

Table 2.4: Change in poverty levels in developing countries, 1981-2001

	Percentage of people living under US$1/day (*1993 PPP**)		
	1981	***1990***	***2001***
East Asia and Pacific (excluding China)	57.7	29.6	14.9
Europe and Central Asia	0.7	0.5	3.7
Latin America and Caribbean	9.7	11.3	9.5
Middle East and North Africa	5.1	2.3	2.4
South Asia (excluding India)	51.5	41.3	31.3
Sub-Saharan Africa	41.6	44.6	46.9

* PPP: purchasing power parity
Source: DFID and Thompson (2004)

During the period 1999-2002, the proportion of people defined as absolutely poor ranged from 12 percent in Côte d'Ivoire to 82 percent in Ethiopia, whilst the average GDP per caput in SSA was the lowest in the world, although there are differences between subregions and countries (see Table 2.5).

Table 2.5: Indicators of economic access to food in sub-Saharan Africa by subregion

Subregions	**Percent population below income poverty line of US$1 a day (countries average range 1990-2002)**	**GDP per caput (US$) (average 1999-2002)**	**Gini index of per caput income (range of index valued for countries in 2002)**	**Percent annual growth in food prices (average 1995-2002)**	**Percent household income spent on food (range of values for countries over 1991-1999)**
Central Africa	33-67	287	29-61	4.8	55-60
Eastern Africa	20-82	242	38-57	8.0	43-72
Southern Africa	23-64	1346	40-71	18.6	56-65
West Africa	12-73	357	37-63	7.4	39-75
SSA	50	475	29-71	5.8	66

Sources: UNDP, World Bank, and African Development Bank.

The low income level in SSA is also accentuated by its uneven distribution, as evidenced by the high Gini coefficient of per caput incomes. The highest Gini index was in southern Africa (71 percent) while the lowest was in Central Africa (29 percent). Both the high level of poverty incidence and the uneven income distribution underline the financial constraints for the majority of the population on their ability to purchase the food they need. Household purchasing power is also undermined by higher food prices which grew at the rate of 6 percent per year over the period 1991-1999. Considering that on average, households in SSA spend 66 percent of their income on food, the impact of rising food prices on household food security cannot be overemphasized.

Poverty and food insecurity within SSA are predominantly a rural phenomenon with over 70 percent of the poor and hungry located in the strongly agriculture-based rural areas (Kydd *et al.,* 2002; DFID and Thompson, 2004; Stamoulis and Zezza, 2003). Indeed, a recent comparative study of rural livelihoods and poverty reduction by Ellis and Freeman (2003) showed that poverty levels in four SSA countries (Kenya, Malawi, Tanzania and Uganda,) are highest in rural areas (Table 2.6).

Table 2.6: Poverty estimates in four SSA countries by Ellis and Freeman (2003)

	Kenya	**Malawi**	**Tanzania**	**Uganda**
Year	***1997***	***1997-1998***	***2000-01***	***1999-2000***
Poverty (% under US$1 per day)				
Total	52.3	65.3	35.7	35.2
Rural	52.9	66.5	38.7	39.1
Urban	49.2	54.9	17.6 / 25.8*	10.3

Source: Ellis and Freeman (2003).
* the two poverty percentages given here refer to Dar el Salaam on its own and all other urban areas, respectively.

The causes of poverty are many and varied and their in-depth analysis is beyond the scope of this paper. However, one key determinant of poverty in sub-Saharan Africa is overdependence on subsistence farming with limited access to gainful off-farm employment and income-generating activities. There is a growing recognition of the importance of non-farm income-generating activities in SSA and their potential to reduce poverty (see Reardon, 1997; Barrett, Reardon and Webb, 2001; Ellis and Freeman, 2002; Leavy and White, 2001). A more detailed review of the role of non-farm diversification and labour mobility for hunger and poverty reduction in SSA is provided in separate Background Notes[6] (See also Box 2.1).

Most efforts to develop this source of income have so far been thwarted by financial, capacity and policy constraints. In spite of these constraints, rural household surveys show that the rural non-farm economy accounts for a considerable share of rural incomes, as indicated in Box 2.1. More important, it is generally accepted that non-farm activities can offer a pathway out of poverty provided the poor are enabled to participate and can respond effectively to related opportunities (Barrett, Reardon and Webb, 2001; Leavy and White, 2000; Lanjouw and Lanjouw, 1995).

[6] Agricultural Development and Food Security in Sub-Saharan Africa: Building a Case for More Support http://www.fao.org/tc/tca/work05/AdditionalNotes.pdf

Box 2.1: The importance of non-farm income in rural areas of SSA

From the rural livelihood studies of Kenya, Malawi, Tanzania and Uganda, Ellis and Freeman (2002) find that total household income is divided almost equally between farm (i.e., crop and livestock production) and non-farm activities (wages, self-employment and remittances). For Tanzania, a sample of 344 rural households surveyed in May-August 2001 showed 49.7 percent of total rural household income from farming, 46.6 percent from non-farm employment (wages and self-employment) and 3.7 percent from remittance transfers.

Reardon (1997) reviews evidence from 23 field studies of rural household incomes in SSA covering various periods from the early 1970s till the mid-1990s. He finds that the average share of income earned in the non-farm sector is 45 percent, with results pointing to an increase of non-farm earnings over time (for instance in Botswana, Burkina Faso, western Kenya, Nigeria and Zimbabwe). In study areas away from major cities or mines (such as in Burkina Faso, Ethiopia, western Kenya, Malawi, Mozambique, Niger, Senegal, Tanzania and Zimbabwe), local non-farm earnings constitute about 80 percent of total non-farm earnings while out-migration earnings account for around 20 percent.

Reardon's (1997) review of Africa and Ellis and Freeman's (2002) work in Tanzania found that determinants of non-farm earnings include several factors that represent constraints and entry barriers for the poor to higher-return opportunities within the rural non-farm economy. These factors include: level of ownership or access to productive assets and finance, investment requirements for entry into remunerative non-farm activities, transaction costs associated with poor availability of public services, risk aversion, education and skill levels and gender inequalities (Kristiansen, 2003; Barrett, Reardon and Webb, 2001; Bergegué *et al.*, 2001; Leavy and White, 2000). It seems, therefore, that non-farm activities can constitute an option for poor households provided special efforts are made to enable them to use opportunities existing in this sector.

SSA governments are often blamed for their urban-biased policies and political expediency which result in a rural-to-urban migration that is motivated by push rather than pull factors, particularly in remote and resource-poor areas. This is to say that rural-urban migration is often more a consequence of deterioration in the rural areas than of attraction by towns.

For many households, the opportunity to generate sufficient income to meet food requirements remains evidently limited, particularly when food insecurity, hunger and disease limit their working capacity. In this context, the establishment of efficient and transparent safety nets is paramount; in fact, much has been done since the 1990s following the negative social impacts of structural adjustment programmes. Indeed, the Intergovernmental Working Group for the Voluntary Guidelines on the Right to Adequate Food has requested that states should consider - to the maximum of available resources - establishing and maintaining social safety and food safety nets to protect those who are unable to provide for themselves (Ravallion, 1987).

Price stability has an important role into facilitating access to food: stable prices reduce the incentive for speculation and contribute to reducing famine mortality (Ravallion, 1987). The practice of maintaining food stocks in Africa varies from one country to another. In West Africa (e.g. Burkina Faso, Chad, Mali, Mauritania, Niger) physical food reserves have been maintained, since the introduction of structural adjustment programmes in the 1980s, at levels representing no more than three months of anticipated import requirements in a bad year for agriculture. In East Africa, Kenya and Sudan normally maintain large price-stabilizing stocks, whereas Uganda traditionally does not maintain any stock. In southern Africa, national buffer stocks provided adequate food security until the prolonged drought from

1982-1984 created a food emergency with which they could not cope. However, because of high costs of procuring, transporting, maintaining and operating grain reserves, governments have been unable to achieve set reserve targets. Reserves that did exist were not linked to safety net programmes, and it is claimed that releases were often made with a view to satisfying short-term political objectives without regard for their longer-term food security consequences (FAO, 2004).

2.3.2 Physical access

National level

Physical access to food, particularly by food-importing countries, has two main dimensions: national and household. At the national level, physical access to food is determined by natural or geographic barriers to trade. The African Development Bank Report (2004) assesses "natural" or geographic barriers by focusing on transport costs. In sub-Saharan Africa this is a major trade barrier, especially for landlocked countries, of which there are several. High transport costs are equivalent to high import tariffs or export taxes not only in landlocked SSA countries, but even in those with seacoasts, as well as those with large and inaccessible hinterlands. Food has to be transported across large distances overland, reaching consumers at a considerable cost given the generally poor state of the road networks, absence of developed communication facilities, low volume of goods transported and low population density (Maetz, 2002). Table 2.7 below presents some indicators of physical access relevant to food distribution.

Generally, SSA countries pay increasing and higher prices for freight and insurance than countries in other parts of the world. One proxy indicator in this regard is the ratio between import price quoted in terms of CIF (Cost, Insurance and Freight) and FOB (Free on Board). For example, a CIF/FOB ratio of 1.2 suggests that transport, handling and insurance costs are 20 percent of the FOB price. Comparing such ratios for SSA to those for Asia in 1980 and 1994[7], we find that freight costs in SSA increased from 11.2 percent to 15.7 percent, while they slightly decreased from 9.3 percent to 8.6 percent in Asia. By 1994, SSA had the highest freight costs of any region in the world. This higher cost is sometimes explained by a relatively low level of activity which is not conducive to competition. The situation is even worse for landlocked countries, where the cost of freight is more than 20 percent higher than elsewhere. Furthermore, port handling charges in SSA are generally considered to be higher than in other parts of the world, making the landed price of imported food much higher than in other regions.

Table 2.7: Indicators of physical access to food in sub-Saharan Africa

Subregion	CIF/FOB ratio		Road to population (1 000km of road per 1 million people)			Rural population with poor access to roads and markets (%)
	1980	1994	1975-84	1985-94	1995-2002	2002
Central Africa	1.244	1.224	5.3	4.7	4.3	43
Eastern Africa	1.161	1.146	2.7	2.6	2.3	35
Southern Africa	1.137	1.222	6.1	8.2	8.4	35
West Africa	1.196	1.191	2.8	2.5	2.4	19
Sub-Saharan Africa	1.227	1.249	3.5	2.8	2.6	-

Source: African Development Report 2004; World Bank Africa Development Indicators 2004, and Ataman, E., *"GIS-based analysis of population distribution and access to marketing infrastructure, by pixel*." FAO, work in progress.

[7] Data was available only for these two periods.

Household level

At the household level, physical access implies that individuals with sufficient purchasing power can have physical access to adequate food at a point within reasonable proximity (AED, 2002). Physical access to food at this level is determined by factors such as local market infrastructure, road conditions, handling and storage facilities and local transportation costs.

Infrastructure is generally poor in most SSA countries. During the period 1975-2002, the ratio of road to population and the percentage of population with access to roads and markets[8] have been very low and deteriorating in all except southern Africa, where the ratio has been higher and slightly improving (see Table 2.7). SSA markets are often poorly integrated and characterized by a low level of competition; food does not move quickly and at reasonable cost from food-surplus to food-deficit areas. Many local markets tend to handle small quantities, and function independently of larger, more central and more competitive national and regional markets.

The lack of market integration implies that production shortfalls cannot easily be accommodated via intraregional, interregional or international trade, and hence the incidence of food emergencies is high (FAO, 2004; NEPAD/AU/WFP, 2004). Thus, even where food production increases in some areas, food emergencies might not be averted in nearby zones due to the deficiencies in the structure and distribution of local markets and their lack of coordination with national and international distribution systems. For example, although for three decades Ethiopia, at the national level, has been food secure in many of those years, it has consistently required food aid. In some years, such as 1998, the country had even exported maize to neighbouring countries (Uganda for example). It recorded a bumper harvest in 2004 - but at the same time, 2 million Ethiopians were declared to be in need of food aid. The main problem is that food cannot be transported from surplus to deficit areas of the country within a reasonable time and at a reasonable cost. This phenomenon applies to most countries given that 43 percent of the population in Central Africa and 35 percent each in East and West Africa are living in areas with poor access to roads and markets.

Box 2.2: Example of food marketing constraints in Kenya

An empirical diagnosis shows that due to problems in food distribution and marketing procedures, there are cases where people starve in drought-prone areas like Turkana and the North Rift Valley even as several tonnes of maize await marketing opportunities in not far-distant Kitale, in Trans Nzoia District. A case in point is the 1983-84 famine which affected various parts of the country. The local residents in Machakos and Makueni districts dubbed the famine *ngwa ngwete,* which means, "I am dying though I have the means". The people had some money to buy food but there was hardly anything in the commercial food stores.

Source: Gitu (2004). *Agricultural Development and Food Security in Kenya*. FAO Subregional Office for Eastern and Southern Africa.

The location, management and procurement and release procedures of the food reserves are also key factors affecting food access for those who need it most. Given the poor infrastructure, food reserves should have been located in close proximity to areas that are likely to face food shortages due to drought or other factors. However, food reserves, where they exist, are often located close to the origin of the produce, the main consumption centres or (for imports) the port of entry. Furthermore, the experience in Malawi and Zambia shows

[8] Poor access to markets is defined as distance of more than 5 kilometers from primary or secondary roads, or more than 40 kilometers from a built-up area observable from the air, with an estimated population of at least 2000 persons. See E Ataman, FAO, work in progress.

the need for transparency in the management, procurement and distribution of strategic food reserves (Kydd *et al.*, 2002).

2.3.3 Political factors

People in conflict areas are often denied access to food even when it is available. Withholding food and deliberately starving civilians has unfortunately been used extensively as a means of warfare in SSA (De Rose *et al.*, 1998). The aim is to starve people into submission by seizing or destroying food stocks, livestock or other assets in rural areas, and by cutting off sources of food or livelihood and tearing down markets in both urban and rural areas. Food is sometimes used for political or military gain, for example in the priority distribution of food to areas supporting the government or for the feeding of troops (despite the so-called "CNN effect", in which international media can now act as watchdog and rapidly report from the field, even when the local government controls information). At the same time, food aid agencies have sometimes been prevented from distributing food in locations where millions of people were in desperate need of help. In other cases, bureaucratic red tape hinders the timely delivery of food aid (Messer *et al.*, 2001). The deliberate denial of food access is said to have sometimes even involved attacks on relief convoys (Keen, 1994). Recently, a ship carrying rice for victims of the tsunami was seized by pirates off the coast of Somalia.

In 2001, there were 17 countries in SSA where food access was constrained by political or armed conflicts, and in at least 13 of them it is claimed that the warring parties used food as a weapon or otherwise destroyed local food supplies or capacities to produce or access food (see Table 2.8 below). In the remaining four countries, although food is not used for political ends, food-aid agencies are impeded from reaching those in need because the security situation is life-threatening to aid workers.

Economic sanctions imposed by the international community with the view to bringing about political change have often had the undesired effect of hurting vulnerable groups more than the people who were the primary target of the sanctions. Several countries in SSA have in the recent past faced embargoes on exports of minerals and other commodities. Although the export embargoes could have adverse effects on the countries' overall economic development and ability to import food, it is very difficult to discern whether the deterioration of the general economic performance of the countries under embargo is due to the embargo per se or the conflict that necessitated the embargo. In either case, its negative impact is evident, as shown by the example of Burundi (Box 2.4). Donor foreign policy considerations have also sometimes affected availability of food aid in emergency situations. For example, one major donor is claimed to have used food aid with the aim of overthrowing the Ethiopian government in the 1980s (Shepherd, 1993).

Box 2.3: Example of food access problems in war-affected areas of Sudan

> "Currently hundreds of thousands of war-affected and displaced Sudanese in Western Upper Nile are denied access to assistance by Government of Sudan flight bans. In Western Upper Nile, the area where the fiercest fighting is taking place, the government has prevented aid agencies from delivering life-saving food and other commodities. It is this combination of active conflict and denial of access that created a famine in 1998 in Bahr el Ghazal, where up to one hundred thousand people died."

Source: Roger Winter, Assistant Administrator, Bureau for Democracy, Conflict and Humanitarian Assistance, USAID. Testimony Before the Subcommittee on African Affairs Committee on Foreign Relations, Washington, D.C., July 11, 2002.

Table 2.8: SSA countries where food access is affected by conflicts

Subregion	Countries where food has been used as a weapon for political ends in conflicts	Countries where conflict/was has resulted in food access problems
Central	Burundi and Rwanda	
Eastern	Democratic Republic of the Congo, Kenya, Somalia, Sudan	Eritrea, Ethiopia and Uganda
Southern	Angola	Mozambique
Western	Ghana, Liberia, Nigeria, Sierra Leone, and Togo	-

Source: Messer *et al.,* 2001

Box 2.4: The impact of 1997 sanctions on Burundi

The impact of sanctions on the local population has been both serious and substantial. Humanitarian activities *per se* only reached a small proportion of the Burundian population. Rural families were affected by a shortage of farm inputs and a reduction in social services. Below-normal yields of cereals, pulses, bananas, coffee and other crops caused further hardships, which were aggravated by the continuing economic sanctions. The urban population was affected by high unemployment and escalating costs of food and other essential items. Sanctions created shortages of essential goods, and those available were beyond the reach of the ordinary consumer.

Source: Eric Hoskins and Samantha Nutt (1997), *The Humanitarian Impacts of Economic Sanctions on Burundi*, Occasional Paper #29 (Providence, RI: Watson Institute).

2.3.4 Socio-cultural dimension

The specific socio-cultural norms that govern control over income and intra-household food allocations can influence access to food. One such factor is the identity of the family member who earns income and his or her spending preferences. In many areas of SSA, there is a clear delineation by gender or age group of responsibilities for different economic activities. Rules vary from country to country or ethnic group to ethnic group, but this sharing of responsibilities is often linked to control over the output. Literature abounds with examples of the introduction of new production activities or technologies that affected income distribution among household members, and ultimately made an impact on food security and nutrition.

Studies of intra-household food allocation indicate that in some cultures, certain individuals receive disproportionately more of the limited food available than others. Maxwell and Frankenberger (1992) wrote, “It is misleading to assume household members share common preferences with regard to (a) the allocation of resources for income generation and food acquisition or (b) the distribution of income and food within the household”. Females are reported to receive less or "poorer quality" food than their male counterparts (Basu *et al.,* 1986). There are also reports that food aid received by men doesn’t always get to the women and children who need it most[9]. Although these are all anecdotes, they point to the need for vigilance and concerted effort for behavioural changes.

2.4 Conclusion

The analysis conducted in this section suggests that there are two main results that need to be achieved in SSA for food security to improve: peace and development. In the next

[9] Internet source: http://www.epals.com/waraffectedchildren/chap6/.

chapter, we will assess the potential role of agriculture in achieving development and food security in the region.

Box 2.5: Main points on food security in sub-Saharan Africa and conclusions

Food security situation

- The bulk of the increase of the undernourished in SSA occurred in countries in conflict, where production has been stagnating since 1990.

Sources of food supply

- **Cereals, roots and tubers** have a central role in food supply in the region.
- **Growth of food production** in SSA has been slow compared to population growth, translating into an annual reduction of 0.4 percent of food production per capita.
- **Country performance** in terms of food security is generally linked to performance in cereal production and higher share of agriculture in exports.
- **Food imports** (including food aid) have grown since the 1980s, and cereal imports now represent a quarter of cereal intake. This proportion can be much higher (up to 80 percent) for those countries that are able to import food with receipts from exports (mainly mineral). Imports can also constitute as much as one third of total supply in poor-performing countries.
- **Food aid** has stabilized since the mid-eighties. Imported cereals, which constitute the bulk of food aid, provide around 3 percent of total cereal intake. This proportion can be much higher (more than 20 percent over the 1990-2002 period), particularly in times of crisis or in countries which have adopted what can be called a “food aid-centred approach”.

Food access

- **Determinants of food access**: People’s entitlements to food arise from their assets, own production, income generated and transfers. The key determinants of access are physical, economic, political and sociocultural.
- **Economic access**: Consistent negative trade balance, general balance-of-payments deficit, a high level of debt and declining share of merchandise export weakened the food import capacity of SSA countries. Yet food imports continue to increase.
- **Food access at the household level** is undermined by high and increasing levels of poverty (50 percent in 2003); overdependence on subsistence farming; limited off-farm employment opportunities; and skewed income distribution. However, non-farm and remittance income can constitute an important share of total household income in rural areas.
- **Physical access:** Food imports in SSA are expensive due to relatively higher freight and insurance costs, especially in the many landlocked countries of the region.
- **Poor road and market infrastructure** results in food either not reaching those who need it most or reaching them at excessively high prices. The saying "I am dying though I have the means" from Kenya sums it up.
- **Political**: In 2001, 17 SSA countries were in conflict, which constrained the flow of food, and in 13 of them food was used as a tool for submission. Sanctions imposed by the international community and donors policy considerations often hurt the innocent and vulnerable.
- **Socio-cultural norms** governing intra-household food access may result in females and children receiving less or "poorer quality" food than their male counterparts, and have an impact on the extent to which additional income generated by development is used for food.

Conclusion

- **Peace and development** are the key components for increased food security in Sub-Saharan Africa.

Chapter 3: Agricultural development as a strategic option for achieving food security in sub-Saharan Africa

This chapter deals with the important question of whether agriculture can provide a viable means to combat rising poverty and food insecurity in many parts of sub-Saharan Africa (SSA). It reviews the arguments for directly tackling hunger and poverty in a development framework while also pursuing economic growth and efficiency. It then examines the main arguments and the available empirical evidence in the debate over the role of agriculture in economic growth and poverty alleviation.

Besides agriculture, various other options for economic diversification in SSA have also been explored as a means of addressing food insecurity and poverty, especially for the medium to long run. The related discussion is available in separate notes provided in addition to this report[10].

3.1 Poverty and food security

The preceding chapter showed that levels of poverty and food insecurity in SSA are among the highest in the world. Often, in the literature, poverty is implicitly taken to also indicate food insecurity, and vice versa. Food insecurity is indeed a major component of poverty, conceptually as well as empirically: national poverty lines are largely based on the cost of purchasing a bundle of basic foodstuffs deemed sufficient for adequate nutrition[11]. Thus, factors affecting poverty as well as related policies will have a very important bearing on food security.

However, poverty and food insecurity do not completely overlap, and neither do their solutions. Hunger is not just a result but a cause of income poverty: chronically hungry and undernourished people may not be able to build the necessary human, physical and social capital that would help them escape poverty (Stamoulis and Zezza, 2003). Therefore, interventions aimed at increasing incomes and alleviating poverty will not automatically address food insecurity. First of all, immediate and targeted measures should be put in place to ensure adequate access to food for the hungry and vulnerable groups. These will, in turn, increase the chances of success for other anti-poverty measures.

3.2 The link between growth, food security and poverty alleviation

The key question that the development community faces in SSA is: *What needs to be done to lift people out of poverty and hunger, and can economic growth alone achieve this result*? It has become clear that economic growth, in the immediate term, could but does not necessarily directly benefit the poor and those facing food insecurity, especially in countries characterized by high income and asset inequality (Pasha, 2002; Ravallion, 2004). In particular, growth will not benefit those who are trapped in poverty because of initial asset inequality coupled with market failures (e.g. credit, risk) or spatial externalities[12] (for details on these mechanisms, see Eswaran and Kotwal, 1986; Besley, 1994). Nevertheless, economic growth does lift many of the poor out of poverty - especially in the long run, and particularly where growth is associated with new opportunities and diversified livelihoods for the poor and the low-skilled (Fafchamps, Teal and Toye, 2001; Pasha, 2002). A number of empirical studies provide support for this argument (see, for instance, Kraay, 2004; Ravallion,

[10] see http://www.fao.org/tc/tca/work05/AdditionalNotes.pdf
[11] Often, an allowance is added for non-food expenditure related to shelter, health-care, education, etc.
[12] Spatial externalities could, for instance, result from economic agglomeration and high costs of providing services to areas with low population density that is geographically scattered.

2004; and Ravallion and Datt, 2002)[13]. The extent to which economic growth will affect poverty, as reflected in elasticities of poverty with respect to income growth, depends on country and region. UNIDO (2004) found that in coastal economies, a 1 percent increase in per capita income will reduce poverty by 1.2 percent. In resource-rich economies, the comparable reduction in poverty will be 1 percent, while in poor land-locked economies this will reduce poverty by only 0.7 percent. "Global estimates show that low-income and highly unequal countries have the most inelastic poverty headcounts with respect to income growth" (UNIDO, 2004). Likewise, the stubbornness of food insecurity varies depending on place.

Besides obvious concerns over social justice and stability, growth without poverty alleviation is also not desirable from a purely economic standpoint. First, with many people living in poverty and food insecurity, the fullest potential of the economy cannot be realized because the poor and food-insecure face barriers to participating in the economy and taking advantage of opportunities[14]. Second, hunger, poverty and excessive income inequalities give rise to social unrest and political instability with potentially devastating and long-term effects on the business climate, infrastructure and the general economy. Finally, by setting its preys on a path-dependant future, poverty and hunger negatively affect economic performance in the long term because of their impact on the health, education and social development of future generations.

The arguments above have been supported by empirical studies (see Box 3.1 below) and are also consistent with historical evidence on the adverse effect of inequality on economic progress. For instance, in Latin America, social polarization continues to discourage investment by causing recurrent political instability (Wood, 2002).

Box 3.1: Examples of the empirical relationship between hunger, inequality and growth

A recent FAO study clearly highlights the cost of hunger for economic growth. It demonstrates, notably, that the average annual GDP per capita in African countries should have attained US$2 200 in 1990 if there had been no undernourishment during the 1960-90 period, instead of the actual level of US$800 (FAO, 2001).

Stamoulis and Zezza (2003) quote a number of studies that document the negative impact of poor nutrition (as measured by caloric intake, weight-for-height index and body mass index) on productivity and wages (see Alderman *et al.,* 1996, for Pakistan; Croppenstedt and Muller, 2000, for Ethiopia; Strauss, 1986, for Sierra Leone; and Thomas and Strauss, 1997, for Brazil).

A recent econometric study by Morrissey, Mbabazi and Milner (2002) found an inverse relationship between economic inequality and growth across developing countries in recent decades.

On the other hand, poverty and hunger alleviation without economic growth cannot be sustained in the long run, if only for the simple fact that, unless there is income growth in the economy, there will be no resources to finance the poverty mitigation efforts. Growth and rising incomes appear to be absolutely necessary conditions for alleviating poverty. For the vast majority of SSA countries, where average incomes are very low, poverty reduction

[13] Using data from 285 household in 80 developing countries, over the 1990s and 1980s, Kraay (2004) finds that, in the medium- to long-run, most of the variation in poverty can be attributed to growth in average incomes. Ravallion and Datt (2002), using survey data for Indian states over about four decades, find that economic growth has tended to reduce poverty.

[14] Besides malnutrition and poor health, the poor also face important liquidity and credit constraints on their ability to tap into investment opportunities.

strategies should be built into growth policies, preferably while avoiding increases in inequality (Bingsten and Shimeles, 2003). In the long-term, raising the incomes of the poor will also be the best strategy for ensuring food security.

3.3 Addressing hunger and poverty in SSA

In the last decade or so, the development community and others have been concerned with tackling poverty and food insecurity in developing countries, especially in SSA, where the problem is most pressing. Recently, this debate has also emerged high on the agenda of world leaders who recognize the importance of defeating poverty and hunger in Africa.

One of the first responses relied on a strategy to reach groups that were excluded from, or marginalized by, the process of growth, through targeted interventions to mitigate any negative effects on the poor of a growth-based strategy that continued to focus on stabilization objectives. “This is the implicit philosophy behind most of the first generation Poverty Reduction Strategy Papers (PRSPs)" (Pasha, 2002)”. More recently, a strategy of “pro-poor growth” has gained considerable support in the development community. The basic goal is to bring about growth but in a manner that allows for the incomes of the poor to grow faster, on the average, than those of other members of society who are not poor (see Pasha, 2002; Kydd *et al.,* 2002; and Ravallion, 2004).

Countries have also been developing strategies for addressing hunger with FAO assistance. The *twin-track approach* to food security adopted by the Rome-based Organizations (FAO, IFAD and WFP) consists in: “(i) promotion of broad-based sustainable agricultural growth and rural development, and (ii) targeted programmes to ensure that hungry people who have neither the capacity to produce their own food nor the means to buy it can have access to adequate supplies" (Stamoulis and Zezza, 2003).

Yet even after years of economic reforms and anti-poverty efforts, the basic questions of whether growth with poverty and hunger alleviation is possible in SSA, and how this can be achieved, remain as pressing as ever.

The best way to reduce poverty is to provide people with opportunities to earn income through participation in the production process. Therefore, *any strategy aimed at defeating food insecurity and poverty in the long run will have to be rooted in sustainable, broad-based economic growth and development*. In the short to medium run, specific interventions targeting the hungry and the poor are necessary to enable their participation in economic life, as well as to ensure that those excluded or marginalized take advantage of opportunities created by the growth-oriented approach. The section below examines the role that agriculture can play in achieving these objectives.

3.4 The central role of agriculture and rural development in the immediate term

Reviewing a number of recent experiences with growth and poverty reduction (e.g. China, India and Vietnam), Pasha (2002) concludes that for growth to more or less immediately impact on reducing poverty, it should have a pattern that directs resources disproportionately to the following:

- sectors in which the poor work;
- areas in which the poor live;
- factors of production they possess (mainly unskilled labour);
- outputs which they consume (e.g. food).

Agriculture meets these criteria in SSA. But the question remains as to whether agriculture can be a leading sector - a growth engine - capable of initiating broad-based, rapid economic development while at the same time reducing poverty and food insecurity.

There are contrasting opinions and predictions, which follow roughly two broad lines of thought. The first view emphasizes the potential of agriculture, and advocates supporting its development within a market-based economic framework (see, Binswanger, 2001; Stringer and Pingali, 2004; DFID, 2003; and Kydd *et al.,* 2002). The second argues about higher potentials for growth and poverty reduction in the rural off-farm sector, manufacturing exports or elsewhere (see, Fafchamps, Teal and Toye, 2001; Ellis, 2003; Reardon, Bergegué and Escobar, 2001).

Arguments in favour of agriculture-led growth and improved food security centre on the direct impact of improved agricultural performance on the livelihoods of the poor, as well as the effect on overall economic activity. Where poverty is a substantially rural phenomenon (as in most low-income SSA countries), accelerated growth of agricultural production can lead to significant reductions in poverty and income inequality; a critical factor is the structure of agricultural growth and its linkages to the rest of the economy. In brief, a dynamic agricultural sector can make five broad contributions to wider development in poorer countries of sub-Saharan Africa, where the agricultural sector accounts for a large proportion of GDP and an even larger proportion of employment:

(i) Increasing agricultural productivity, which is essential first for generating the surplus required for capital investment in agriculture itself and in other sectors, and for the steady release of labour to other sectors of the economy.
(ii) It can contribute to increased food availability and export earnings, for which it is the major source;
(iii) It has a major role to play in providing a stable supply of food and keeping food prices at an affordable level for both urban and rural poor, with further implications for the competitiveness of other sectors.
(iv) It is the major source of domestic income and hence acts as a stimulus for demand for local goods and services (Mellor, 1986[15]; Timmer, 1988).

(v) Agricultural development can generate multiplier effects for growth and the creation of economic opportunities in the rural off-farm sector, and more broadly through its linkages - for example, through production linkages (backward through demand for inputs, and forward as supplier for downstream activities) and factor linkages (mainly through labour, but also in capital markets). However, consumption linkages are the strongest (Bautista and Thomas, 1998; Binswanger, 2001)[16]. Increased agricultural incomes raise demand for non-farm consumption goods and services. Recent data from the United Nations Industrial Development Organization (UNIDO) indicate a strong role for the food industry as a major component of the manufacturing sector in SSA. In fact, in 2002, the food, beverage and tobacco industries produced around percent of the total manufacturing value added (MVA), with the sub-sector accounting 40 for as much as 60 percent of MVA in Tanzania and 54 percent in Madagascar (UNIDO database, 2004).

The idea is that, given the agriculture-growth linkages and multiplier effects, agriculture could be the driver not just of growth in one sector, but indeed of much larger economy-wide processes of economic transformation (see Box 3.2). However, to maximize rapid *and equitable* overall economic growth, care has to be given to ensure that benefits from

[15] Quoted in Kydd *et al*., 2002.
[16] For a detailed discussion of the agriculture linkages and multiplier effects, see Binswanger (2001) and Kydd *et al.,* (2002).

agricultural growth are not reaped mostly by well-off households. Otherwise, income generated and growth of rural households' expenditure will favour capital-intensive products and imported goods rather than labour-intensive, locally produced goods and services (Bautista and Thomas, 1998).

Box 3.2: Agriculture development and its growth linkages

Some evidence suggests that rural non-farm employment and incomes are strongly enhanced by a dynamic and prosperous agriculture. Empirical studies from SSA, reported in Haggblade, Hazell and Brown (1989), reveal multiplier effects of agriculture on rural non-farm incomes of 1.5, which is to say that one extra dollar of agriculture value added creates 0.5 dollars of additional rural non-farm income.

In a broader context, Bautista and Thomas (2001) found an "average" agricultural GDP multiplier of 1.62, based on the 1991 Zimbabwe Social Accounting Matrix (SAM). This is to say that each Zimbabwe dollar of additional value added generated by agricultural activity led to an increase of Z$0.62 in incomes elsewhere in the economy. This is higher than the equivalent multiplier calculated for light manufacturing (1.49). The authors also found evidence that the distribution of income benefits from agricultural growth is a potentially significant influence on overall economic growth.

Finally, agriculture has demonstrated the capacity to provide a buffer against macroeconomic shocks by acting as an informal insurance mechanism in societies where social safety nets and formal insurance schemes are weak. The more integrated the rural urban labour markets and the more developed the agro-industries, the greater is this capacity (Dévé, 2004). An example of where an agriculture-led growth strategy has achieved important results in poverty reduction during a certain period is China (see box 3.3).

Box 3.3: China's growth with poverty reduction strategy

"During the earlier part of the 1980s, China's agriculture-led development strategy sparked off a historically unprecedented reduction in poverty. The resulting rural prosperity directly propelled the emergence of non-farm townships and village enterprises which further boosted employment and incomes and created a virtuous circle of growth and poverty reduction. The result was a surge in pro-poor growth" (Pasha, 2002).

Among those advocating for alternatives to agriculture-led growth, "two main strands can be identified: rural non-farm diversification and export (largely manufacturing) growth" (Kydd *et al.,* 2002)". Fafchamps, Teal and Toye (2001) argue that exports are currently the only promising venue for growth in Africa, with manufactured exports having the potential for providing the highest long-term growth rates. They recognize that not all African countries, particularly the least developed ones, will be able to successfully pursue this strategy in the medium run and that, "for the bulk of African countries, best options for exporting and growth are elsewhere: agriculture, mining, and tourism" (Fafchamps, Teal and Toye, 2001). On the other hand, Reardon (1997) for SSAs and Reardon, Bergegué and Escobar (2001) for Latin America point to the need to "remove the bias toward agriculture development in the framework of rural development strategies by putting investment and capacities to rural non-farm income employment". They, however, argue that this should not be pursued at the expense of agriculture and that additional resources should be mobilized instead.

Others disagree on the potential of agriculture to generate growth and well-being for the rural masses of the developing world, especially in SSA. They argue that "rising crop production

cannot be a vehicle for poverty reduction in economies where non-farm growth has stalled, providing negligible growth in demand either for food staples or for higher value crops. ... Poverty is prevalent in rural areas because economic and social dynamism is at low ebb in those areas, and is unlikely to improve under any feasible scenario of intervention by government and donors (who) ... fail to address the urban growth constraints and instead pour money into the impoverished countryside" (Ellis and Harris, 2004).

In balance, however, a host of empirical evidence illustrates the role of increased agricultural incomes in poverty reduction (see box 3.4, as well as Thirtle, Irz *et al.*, 2001).

Box 3.4: Agriculture's effective role for hunger and poverty reduction

Based on 11 case studies from developing countries, a recent FAO study concluded that agricultural growth has a strong poverty reduction impact on both rural and urban areas. In many cases (e.g. Mexico, Indonesia, Chile, China) agriculture was found to be more effective than other sectors in reducing the incidence of poverty (Dévé, 2004).

A study of 58 developing countries by Lin *et al.,* (2001) found that a 10 percent increase in agricultural productivity was associated with a reduction of 6 percent in the proportion of people living on $1/day. For 16 SSA countries, there was an almost one-to-one relationship. No equivalent relationship, on this scale, was found for manufacturing and services, in either rural or urban areas (DFID, 2002).

Datt and Ravallion and Datt (2002) found that, in India, the highest impact on poverty comes when there is higher average farm productivity, higher public spending on development, higher (urban and rural) non-farm output and lower inflation.

Considering the economic characteristics of most SSA countries - particularly those where food insecurity is acutest - it appears that economic development and food security cannot improve *immediately* unless more attention and support is given to agriculture. Growth of agricultural incomes will be crucial (even if not everywhere the best option) for pro-poor growth and food security in the short to medium run (see Binswanger, 2001; Majid, 2004; DFID and Thompson, 2004; and Kydd *et al.,* 2002). It will also constitute a platform for initiating broad-based overall economic growth in a heavily agriculture-based developing country[17]. For agricultural growth to achieve maximum impact on food security and poverty reduction, however, it will need to be supported by the simultaneous development of other rural activities, particularly rural services and agro-based processing industries. Dynamics of demand and up and downstream innovations can have strong spill-over effects in raising agricultural productivity and incomes. "Modernization and increased competitiveness of the agricultural sector can only be achieved with the development of primary production, but also of manufactures, commerce, and other services that are essential to modern agriculture" (Reardon, Bergegué and Escobar, 2001). Therefore, links of agricultural producers with markets and value-added chains are crucial as multiplier effects, and are likely to be highest the stronger the two-way linkages[18]. As a result, strategies aimed at reducing food insecurity and poverty, in the medium- to long-run, should not attempt to address these issues within the agricultural sector alone, but also through its interactions with the rest of the economy.

[17] Bautista and Thomas (1998) cite a number of corroborating studies, including Mellor (1976) on India, Adelman (1984) on Korea, Adelman and Taylor (1990) on Mexico, Delgado *et al.* (1994) on four SSA countries, Mao and Schive (1995) on Taiwan, and Bautista and Robinson (1997) on the Philippines.

[18] For a more detailed discussion of agricultural linkages with the rest of the economy and their effect, see the "Separate Notes", section on "Rural Development and the Non-Farm Sector" http://www.fao.org/tc/tca/work05/AdditionalNotes.pdf

Development of health services, sanitary environment, safe water and education will equally contribute to creating a favourable environment for the development of agriculture and the proper use of the food produced so that nutritional security can be achieved.

Box 3.5: Mutual benefits of the development of agricultural and of other economic sectors

Experience in some OECD countries after WWII and in South East Asia suggests that agriculture and industry have mutually and strongly benefited from each other's development (see Boussard *et al.*, 2005). While agriculture, particularly as a result of increased productivity, released labour necessary for the proper development of the manufacturing sector, the latter generated and "exported" surplus capital to the agricultural sector (in the form of either savings and finance channelled through development banks, or machines and equipment produced by the increased capacity of the industrial sector).

However it is not clear whether public intervention (provision of public goods, credit, insurance mechanisms) was necessary for this to happen: productivity gains in the manufacturing sector alone may have made that possible with a negligible impact of agricultural policies (Gardner, 2002). Yet, some economists observe that the surplus generated by the manufacturing sector would not have found its way into agriculture without an attractive investment policy framework, in particular to generate price stabilization.

This experience suggests that SSA countries could benefit from similar patterns. However, there are two key differences which may need to be dealt with between the situation in the cases mentioned above and most SSA countries today. First, the economy was then already diversified: one may wonder if, in SSA countries today, such a manufacturing sector (or a sector in another domain) does exist at a scale that would generate a similar surplus which, in turn, would be available for investment in agriculture. This suggests that an additional influx of capital from abroad may be necessary. Secondly, after WWII, the domestic market actually provided a captive demand in OECD and Asian countries, which is not the case of SSA countries' externalized economies today. These differences substantiate the promotion of regional/subregional economic unions, including preferably some countries with a strong non-agriculture sector, along with a policy framework that sets differentiated duties on import-substitutable products, free capital inflow as well as free movement of labour within and outside the economic union.

In the medium- and long-term, as development occurs and the level of human capital rises, increased attention will need to be given to economic diversification into non-agricultural activities (e.g. industry and services), as illustrated in Table 3.1. In overcoming hunger and poverty in the medium to long run, there is no feasible alternative to the diversification of the sources of growth in the national economy (Deshingkar, 2004; Reardon, Bergegué and Escobar, 2001).

Table 3.1: Change of structural composition of GDP as income increases, 1995

	Low income	Middle income	High income
Agriculture	27%	10%	2%
Industry	30%	36%	30%
Services	43%	54%	68%

Source: Stefan Dercon, 2004 lecture notes. University of Oxford.

In the following chapters, evidence will be provided that, despite an unsatisfactory overall performance of the sector in SSA, there is scope for optimism. Provided that adequate

policies and public support are put in place, there are good reasons to believe that agriculture and the rural sector can lead broad-based and rapid economic development, as well as contribute towards reduction of poverty and food insecurity. The following chapters outline the basic characteristics of public action required to enable agriculture and the rural sector to play a central role in improving food security in SSA.

Box 3.6: Strategic options for food security in SSA and conclusions

Summary points

- Food security is a major component of poverty, but food insecurity is both a result and a cause.
- Immediate measures are required to ensure adequate access to food for the hungry and vulnerable groups, increasing the chances for success of other anti-poverty measures (twin-track approach).
- Reduction of poverty and food insecurity requires economic growth in the sectors in which the poor work, in areas where they live, using factors of production they possess and generating outputs they consume.
- Agriculture meets all these criteria and has a proven ability to act as a growth engine to initiate broad-based and rapid economic development. Furthermore, it has proven to be more effective in reducing poverty than manufacturing or services.
- Agricultural growth also induces growth in rural non-farm activities, which can help reduce poverty if care is taken that benefits are not reaped by the better-off.
- Agriculture development can generate capital surplus, release labour for other sectors and provide a stable food supply at affordable prices; it is key to the competitiveness of other sectors and is a major source of stimulus for demand for other goods and services.
- Agriculture has proven to be able to act as a buffer in case of economic crisis.
- To be sustainable, agricultural development needs to be supported by broader rural development.
- In the immediate term, economic development and food security in most SSA countries cannot improve unless more attention and support are given to agriculture and rural development.
- Support for health, education and sanitation is vital to ensure that food consumed is optimally utilized to achieve nutritional security.
- In the medium and long term, as development occurs and human capital grows, increased attention will have to be given to economic diversification into non-agricultural activities (e.g. industry and services).

Conclusion

Agriculture can act as the leading sector for development and food security, particularly in the less-advanced SSA countries. The next chapter reviews the performance of the sector and measures the extent to which it has started to play its potential role.

Chapter 4: Performance of the food and agriculture sector in sub-Saharan Africa

In this chapter the performance of the food and agriculture sector in sub-Saharan Africa (SSA) is generally assessed over the last four decades divided into four periods: 1961-1974, 1975-1984, 1985-1994 and 1995 onward. The division is made with the view to capturing distinct periods of development paradigms to the extent possible[19]. The first decade represents the immediate pre- and post-independence period for most countries, up to the first oil shock of 1973. This is the period when countries were trying to establish their nationhood and when in most of them the development of import-substitute industries and infrastructure was high on the agenda. The second period generally represents the expansion of state intervention (through the creation of parastatal organizations), the second oil shock and a period of general macroeconomic instability. The third and fourth periods more or less correspond to the implementation of structural adjustment programmes and the so-called post-adjustment period.

4.1 Significance of agriculture

4.1.1 Agriculture in the economy

A review of the importance of the agriculture sector, in terms of its contribution to GDP, export earnings and employment, reveals the unchallenged prominence of the sector in the economies of most SSA countries. In 2000-03, agriculture accounted for between 20 and 61 percent of total GDP in more than 50 percent of the countries (Table 4.1). The share was less than 20 percent in under 35 percent of the countries, and these are either primarily mineral-dependent (e.g. Angola and Gabon) or with relatively well-developed economies (Mauritius, Seychelles and South Africa). The sector accounted for over 49 percent of GDP in more than one out of four SSA countries, and these are among the poorest countries in the world. It is worth noting that, contrary to expectations, agriculture's share of total GDP has increased since the mid-1980s in almost half SSA countries. The most significant increase (over 10 percent) was in Cameroon, Central African Republic, Comoros and the Democratic Republic of the Congo. This reflects an important issue here, which is that, even if one were to consider the growth performance of agriculture as disappointing, it still was better than in other sectors in many African countries.

Table 4.1: Share of agriculture in total GDP (%)[20]

Period		Less than 20%	20-40%	More than 40%	Total
1984-86	No of countries	9	23	6	38
	%	24	61	16	100
2000-2003	No of countries	16	17	13	46
	%	35	37	28	100

Source: World Bank, 2004

It must be noted, however, that these data generally underestimate the importance of agriculture in the economies of SSA countries, as they do not reflect the share of SSA economies that are directly dependent on agriculture, be it upstream (inputs, equipment and

[19] The four periods are based on a general characterization that does not necessarily fit with the evolution of policies in individual countries.
[20] Detailed data by country can be found in Appendix 4.1.

services) or downstream (marketing and processing), a large share of which is often in the informal sector.

4.1.2 Agriculture's role in development

Agriculture's dominant role as a source of foreign exchange and as an engine for overall development through forward and backward linkages with the manufacturing sector also remains unchallenged in many SSA countries. Most industrial activities are agro-based, and agricultural, fishery and forestry products are the primary export items in 24 out of 47 countries, and second in importance in 8 other countries. However, most countries depend on a single agricultural commodity (e.g. cocoa, coffee or cotton), which accounts for more than 70 percent of export earnings (e.g. Burundi, Chad and Mali), whereas others (e.g. Kenya, Senegal and Tanzania) have a more diversified food and agricultural export base.

Agriculture is also by far the most important source of employment. On average, 62 percent of the total population in SSA live in rural areas and depend mainly on agriculture, fishing and forestry for their livelihood. The proportion is over 70 percent in the 12 poorest countries.

4.2 Agricultural GDP growth

The growth rate of agricultural GDP in SSA improved from an average of 1.1 percent per annum in 1975-1984 to 2 percent and then 3.9 percent in 1995-MRY (most recent year)[21]. The improvement is also reflected in the increase of the number of countries achieving relatively higher growth rates. The countries with a growth rate greater than 3 percent rose from 10 in 1975-1984 to 25 in 1995-MRY (Table 4.2). Only Benin and Mali maintained a growth rate of higher than 3 percent during all three periods (see Appendix 4.2).

Table 4.2: Growth of agricultural GDP

Period	>5%		3 - 5%		1.00-3.00%		<1.00%	
	No.	%	No.	%	No.	%	No.	%
1975-84	4	12	6	19	8	25	14	44
1985-94	3	7	14	31	16	36	12	27
1995-MRY	11	24	14	30	17	37	4	9

Source: World Bank, African Development Indicators, 2004

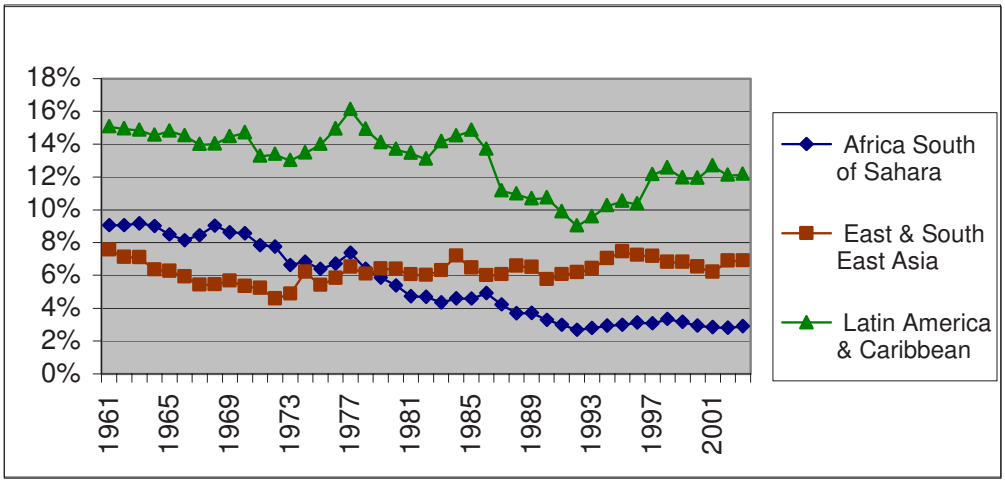
A strong post-conflict agricultural recovery is observed in Angola, Mozambique and Rwanda, while it continuously performed poorly in some countries. A number of factors, such as civil strife and political and macroeconomic instability, are responsible. In general, conflict countries have a significantly lower average gross production per caput over the 1961-2004 period than non-conflict countries, and only few of them have achieved today a level of production equivalent to what it was in the early sixties (Lauriala, 2005). Given the importance of the sector as a source of livelihood for the large majority of the population, foreign exchange earnings and a base for industrial development, attaining and maintaining a high agricultural growth rate remains a critical challenge for all SSA countries[22] in their endeavour for achieving broad based economic development.

[21] World Bank, African Development Indicators, 2004, Washington D.C., 2004.
[22] Average annual population growth rate was 2.9 percent in 1975-1990 and 2.6 percent in 1990-2002 in SSA (*World Development Indicators*).

4.3 The performance of agricultural trade

Developing countries have generally lost their share in the world agricultural market to developed countries. This is generally attributed to the massive farm subsidy programs in the developed countries and constraints met by developing countries in having access to international markets. The loss was particularly noticeable in SSA, where the share of agricultural export declined from around 8 percent in the early 1960s to a mere 2 percent in the early 2000s. While East and Southeast Asia and Latin America and Caribbean have been regaining ground in recent years, the trend in SSA is one of continuous decline (Figure 4.1).

Figure 4.1: Share in world agricultural exports



Source: FAOSTAT data, 2005

Although the majority of SSA countries depended on exports of a limited number of agricultural products, only 12 countries appear to have taken advantage at the time of the commodity boom of the 1960s (see Table 4.3).

The period 1975-1984 saw a sharp deterioration in agricultural exports, with only 8 countries attaining a growth rate greater than 3 percent. The only country with an export growth rate of over 3 percent throughout the years for which data is available is Côte d'Ivoire. This is attributed to a favourable domestic policy environment and, until recently, political stability. In all the other countries there is no consistent trend of performance.

Table 4.3: Growth of agricultural export in SSA countries by period [23]

Period	More than 3%		2-3%		1- 2%		Less than 1%	
	No. of countries	% of total	No. of countries	% of total	No. of countries	% of total	No. of countries	% of total
1961-74	12	29	9	21	10	24	11	26
1975-84	8	19	2	5	15	26	17	40
1985-94	10	24	4	10	14	33	14	33
1995-04	11	27	5	12	13	32	12	29

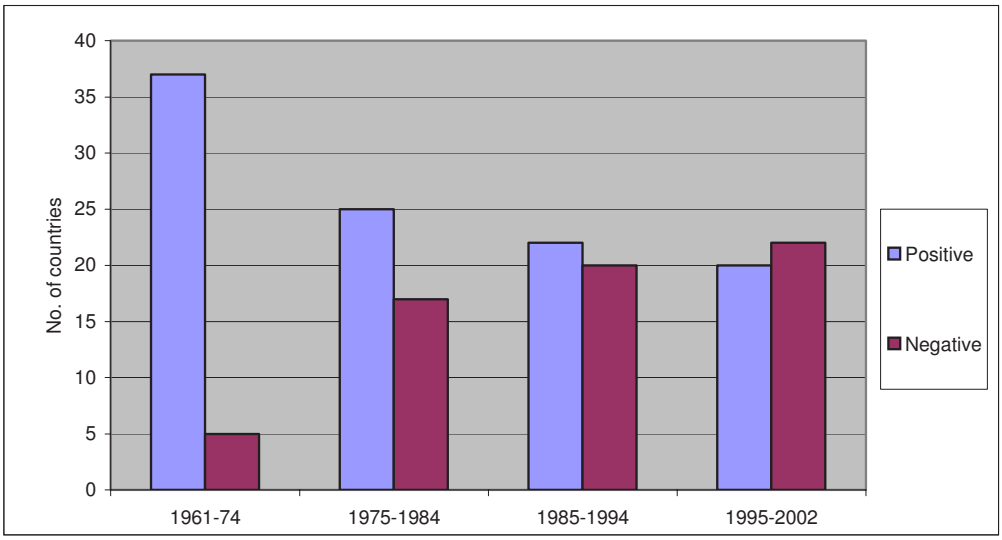
Source: FAOSTAT data, 2005.

[23] Detailed data by country can be found in Appendix 4.3.

In contrast with exports, agricultural imports have been surging during the last four decades. A combination of poor performance of the agricultural sector and rapid population growth has resulted, in many countries, in increasingly resorting to agricultural imports, and some on food aid, to meet domestic demand. The average annual growth rate of agricultural imports since 1961 has been greater than 4 percent in the majority of countries. At the same time, the number of countries with a positive agricultural trade balance has declined significantly (see Figure 4.2).

Given agriculture's role as a major source of foreign exchange in the non-mineral-rich SSA countries, the sluggish performance of agricultural export vis-à-vis the growing volume and value of agricultural imports has diminished countries' ability to embark on investment programs needed for their development – particularly in the areas of agriculture and rural development - because of shortage of foreign exchange.

Figure 4.2: Number of countries with positive and negative agricultural trade balance



Source: FAOSTAT data, 2005

4.4 Subsector performance

4.4.1 Crops

Cereals

Cereals represent the most important food group in most SSA countries, and have often been the focus of development policies. Despite these efforts, production has been plagued by low and fluctuating performance. The annual growth rate, which was 1.8 percent during 1961-1974, has fallen to 1.5 percent since 1995. Geographical variability is also very high, ranging from an annual growth rate of 3 percent in West Africa to 0.5 percent in Southern Africa excluding South Africa.

An analysis of production performance by country and across periods reveals that the proportion of countries with an annual production growth rate of over 3 percent declined from two-thirds in 1961-1974 to about half in 1975-1984, and just below 60 percent thereafter

(Table 4.4). Only Benin and Togo have consistently achieved output increases of more than 3 percent since 1975 (see Appendix 4.2). Conflicts have taken a high toll on growth, as is the case in the Democratic Republic of the Congo, where the growth rate went down from more than 3 percent before 1995 to less than 1 percent thereafter.

The other characteristic of cereal production in SSA has been sharp year-to-year variation. For example, a trend analysis of maize production in the seven English-speaking case study countries (Ethiopia, Ghana, Kenya, Malawi, Nigeria, Tanzania and Zambia), shows that a good year is generally followed by a very bad year. Such a trend is particularly pronounced in Malawi and Zambia, where food security is generally tied to maize (see Appendix 4.5).

Table 4.4: Performance of the cereal subsector (average annual growth rate %)[24]

Period	More than 3%		2-3%		1-2%		Less than 1%	
	No. of countries	% of total	No. of countries	% of total	No. of countries	% of total	No. of countries	% of total
1961-74	17	40	9	21	10	24	6	14
1975-84	13	30	9	21	11	26	10	23
1985-94	14	33	9	21	10	24	9	21
1995-04	14	33	11	26	10	23	8	19

Source: FAOSTAT data, 2005.

Within the cereal group, maize is the most important staple crop in most countries, followed by rice. Therefore, the challenge has often been to attain production increases of these crops above the population-growth rates. However, only Togo managed to consistently achieve this target. Similarly, the performance of rice production has been erratic in all but Burundi and Nigeria, which were able to achieve and sustain a high growth rate since 1961. Wheat, which constitutes more than half of SSA cereal imports, is significant in only in five countries (Ethiopia, Kenya, South Africa and Sudan) where average production for the last 15 years has been over 200,000 tones. South Africa with production over 2 million tones and Ethiopia over one million are the most significant wheat producers in the region.

Roots and tubers

Root and tubers, mainly cassava, is the area where Africa's share is significant in world production; it has even increased, from around 40 percent in the 1970s to over 50 percent since the mid-1990s (Kidane, 2003). The annual production increase averaged 2.8 percent during 1961-1974 and 6.5 percent from the mid-1980s to mid-1990s. Supported by yield increases (see Chapter 6) and area expansion, roots and tubers, as a group, performed better than the other food commodities, particularly in West Africa.

Oilseeds and pulses

As depicted in Figure 4.3, oilseed production suffers from low growth rates and a high degree of variability. In aggregate, annual production growth rates declined to a negative 1.1 percent in 1975-1984. Growth improved in the subsequent years, albeit at a very low level.

The production growth rate of pulses was better than for oil crops during most years. Excluding the period 1975-1984, annual growth varied between 2.6 and 3.9 percent. The highest performance was limited to West Africa, where production averaged 3.6 percent

[24] Detailed data by country can be found in Appendix 4.4.

during the last 40 years. This is to be compared with the less than 2 percent observed in the other subregions (Figure 4.4).

Figure 4.3: Performance of oil crop production by subregion (average % annual growth)

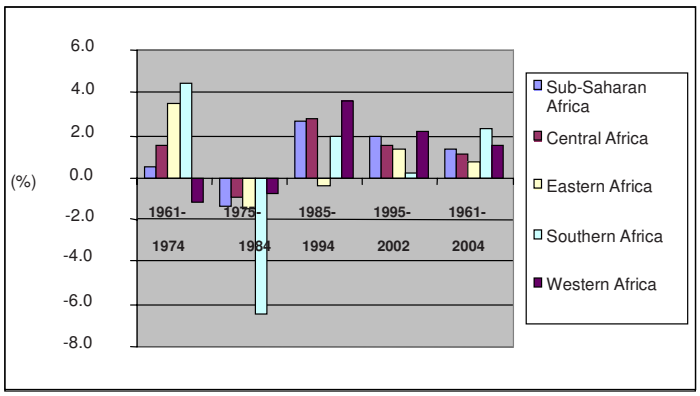
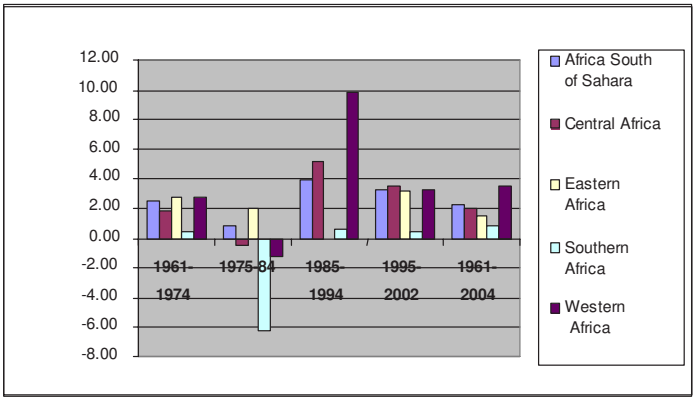


Figure 4.4: Performance of pulse production by subregion (average % annual growth)



Source: FAOSTAT data 2005

Fruits and vegetables

Annual production of fruit and vegetables in SSA increased at an average rate of 2.3 percent per annum between 1961 and 2004. The highest average growth rate (3.7 percent) was observed during 1961-1974, and the lowest (0.7 percent) during 1975-1984. The highest annual growth rate was in West Africa (2.7 percent), and the lowest was in Central Africa (1.8 percent).

The export value of fruits and vegetables, however, grew at an annual average of 5.3 percent between 1961 and 2003. This varied significantly over time and across regions. After a fantastic growth of 7.4 percent per annum during 1961-74, the rate dropped to around 3.3 percent during 1974-1985 and 2.2 percent since 1995. There is a difference in performance among the regions, with the highest export growth rate for the entire period in West Africa (2.7 percent) and the worst in Central Africa, where there is no clear pattern and huge year-to-year swings in performance.

Major cash crops

The major cash crops from the region are coffee, tea, cocoa and cotton, representing in aggregate 40 to 50 percent of the value of total agricultural exports. These commodities saw their best years around the period of independence when (except for cocoa beans) production as well as volume and value of exports increased on average by more than 3 percent (see Table 4.5 below). However, production of most of these commodities suffered a serious setback during the period of 1975 to 1984, with coffee declining at an average annual rate of 1.2 percent, and cotton and cocoa growing at a dismal 0.2 and 0.5 percent per annum, respectively. This is generally explained by unfavourable domestic policies and international trade regime, which resulted in low farm gate prices. The exception has been tea, which continued to grow at around 3.8 percent annually mainly in a few countries, among them Kenya.

Despite the poor growth, SSA still accounts for 69 percent of world cocoa production, 98 percent of which comes from four West and Central African countries (Cameroon, Côte d'Ivoire, Ghana and Nigeria). Côte d'Ivoire is leading world producer and exporter; it has the world's third-largest grinding capacity. Eighty-four percent of the production comes from farms with sizes below 5 hectares and yields of 0.4 tonnes/ha on average, which is far below the levels seen in Asia[25].

Table 4.5: Growth of major cash-crop production, and export volume and value[26]

Item	Commodity	1961-74	1975-84	1985-94	1995-2003	1961-2003
Performance production	Tea	8.1	3.8	3.1	3.2	4.9
	Cotton lint	4.7	0.2	-0.2	2.0	2.2
	Cocoa beans	1.2	0.5	3.7	1.6	2.3
	Coffee, green+roast	2.8	-1.2	-1.9	-3.1	0.0
Performance Export Volume	Tea	8.7	3.5	2.7	-0.5	4.5
	Cotton lint	2.7	0.9	1.9	4.3	2.0
	Cocoa beans	0.2	1.1	3.8	2.3	1.8
	Coffee, green+roast	3.5	-1.3	-2.6	-4.7	-0.4
Performance Export Value	Tea	8.1	9.7	3.5	-0.1	6.4
	Cotton lint	6.4	3.3	4.1	-2.6	3.9
	Cocoa beans	8.0	0.6	-6.1	4.5	4.5
	Coffee, green+roast	8.7	1.3	-12.6	-18.2	1.7
	Other Agr Exports	5.1	6.5	4.8	-0.1	3.6
	Total Agr Exports	6.2	1.3	-0.3	-0.9	3.6

Source: FAOSTAT data, 2005

Unlike the other commodities, cocoa beans showed growth of 1.2 percent per annum during the early sixties. The rate declined to 0.5 percent during 1975-1984, then registered significant increase during 1985-1994. Apparently this commodity has benefited from adjustment in foreign exchange regimes that occurred in the context of structural adjustment programmes, to the advantage of farmers such as those in Ghana, who suffered enormously from currency overvaluation in the years preceding adjustment. The most noteworthy factor, however, is the relatively good performance in export value of non-traditional export crops.

[25] Source : Ministère de l'industrie et du développement du secteur privé, Côte d'Ivoire
[26] See also graph in Appendix 4.6.

The sector performed very well for all the periods except the most recent, when the decline of all the export commodities is observed in value terms except for cocoa products.

4.4.2 Performance of the livestock sector

The performance of the livestock sector was assessed based on two main products: meat and milk.

Table 4.6: Growth rate of meat production in SSA

Region\Growth Period	1961-74	1975-84	1985-94	1995-2004	1961-2004
Africa South of Sahara	2.4	3.3	0.7	2.3	1.8
Central Africa	2.9	2.5	3.0	2.9	3.0
Eastern Africa	1.9	1.5	1.5	2.2	1.6
Southern Africa	1.7	1.8	1.3	2.2	1.1
Western Africa	2.4	6.4	-1.0	1.4	1.6

Source: FAOSTAT data, 2005

The annual meat production growth rates, despite showing a positive trend, have been below population growth, which implies a decline of production per capita. Over the entire 1961-2004 period, and also during the last two decades, milk production grew at around 1.8 percent per annum. The best performance was observed in Central Africa, where production kept pace with population growth, while Southern Africa faired worst. In absolute terms, East Africa is the highest milk producer, with Ethiopia, Kenya, Sudan, Tanzania and Uganda being the highest producers. In general, milk is primarily produced for domestic consumption. Exports are insignificant, and the region, as a whole, remains a net importer.

An analysis of meat production reveals a similar pattern: growth rates have hovered around 2.3 percent since 1995 (see Table 4.7). As in the case of milk, Central Africa performed best, with a growth rate of around 3 percent.

Table 4.7: Meat production – Total SSA and by subregions

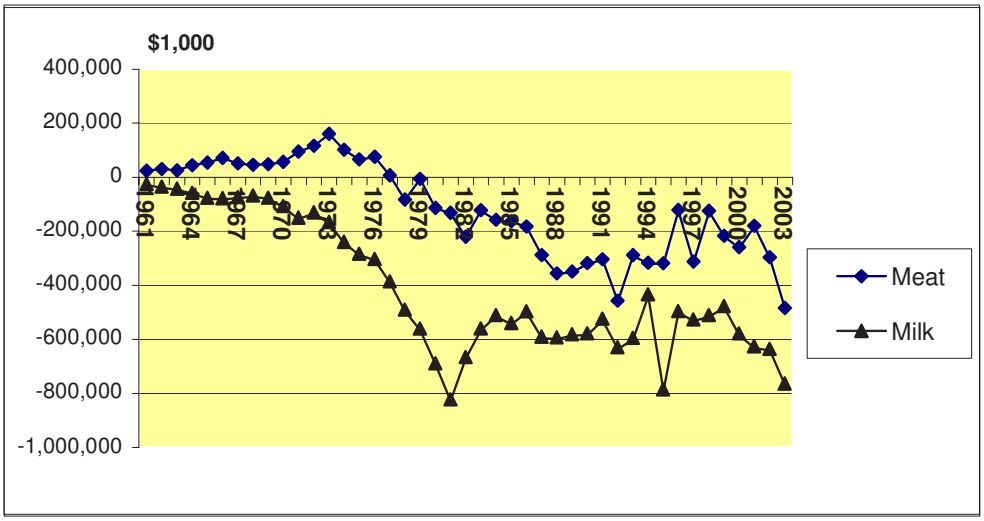
Region\Growth Period	1961-74	1975-84	1985-94	1995-2004	1961-2004
Africa South of Sahara	2.4	3.3	0.7	2.3	1.8
Central Africa	2.9	2.5	3.0	2.9	3.0
Eastern Africa	1.9	1.5	1.5	2.2	1.6
Southern Africa	1.7	1.8	1.3	2.2	1.1
Western Africa	2.4	6.4	-1.0	1.4	1.6

Source: FAOSTAT data, 2005

The region accounts for an insignificant proportion of the world meat trade, but it is an important export for Benin, Botswana, Namibia and South Africa, which account for 84 percent of meat exports from the region[27]. After a significant initial increase, there was a decline in meat exports during the 1994-2003 decade. It should be noted that this decline happened when global demand for the commodity was increasing (Figure 4.5).

[27] Unrecorded cross-border movements, which can be significant in some SSA countries, should also be kept in mind. Futhermore, it can be assumed that most of the quite significant exports from Benin are re-exports of meat coming from neighbouring Sahelian countries.

Figure 4.5: SSA trade balance of meat and milk production



Source: FAOSTAT data, 2005

4.4.3 Production and export performance of the fisheries sector

Sub-Saharan Africa accounts for only 4 percent of world fish production and 2 percent of world exports. However, the region has seen a significant relative increase in fish catch and export during the last two decades. While the export value of total fish grew on average by 7.4 and 1.6 percent annually in the world during 1982-1991 and 1992-2001, respectively, the corresponding figures for SSA were 8.8 and 5.8 percent. Southern and West Africa did particularly well, with export growth of 8.9 and 10.8 percent, and 10.9 and 3 percent, respectively. East Africa, with corresponding growth rates of 7.5 and 2.3 percent during the last two decades, did not fair badly either. A triennial average (2001-2003) value of fish export from SSA countries is now equivalent to 20 percent of the export revenues from cotton.

Marine fishing accounts for two-third of the fish catch, and more than 90 percent of the landings occur on the West Coast. The volume of fish landed has been fluctuating in the Southeast Atlantic (Angola and further south), while it has been growing steadily in the coasts north of Angola. It is important to note that about 25 percent to 30 percent (between 1.5 and 2.0 million tonnes annually) of marine fish captured in African waters is accounted for by vessels from non-African states (e.g. Russia and European countries), and remains unrecorded as African fish output.

Freshwater fish contributes about one third of landings in SSA, a higher share than recorded for most other continents. In 2001, inland fish production per capita in Chad, Gabon, Mali, Republic of the Congo, Tanzania and Uganda were higher (8 Kg live-weight equivalent or above) than in any other country except Cambodia (FAO, 2003). However, aquaculture remains modest, with significant production taking place only in Madagascar and Nigeria.

Box 4.1: Main points on performance of agriculture in sub-Saharan Africa and conclusions

- Agriculture is prominent in the economies of most SSA countries, accounting 20 to 60 percent of GDP.
- Agriculture is the primary source of export earnings in all but the mineral-rich and developed countries, which are few, and the most important source of employment.
- Agricultural GDP growth in characterized by ups and downs, but in recent years, annual growth has been around 3.9 percent. Performance of Central Africa is hampered by conflict and Southern Africa by the increase of occurrence of droughts.
- SSA share of the global agricultural export market contracted from 8 percent in the 1960s to 2 percent in recent years, and the number of countries with agricultural trade surplus decreased from 37 in the 1960s to 20 in recent years. Even in those countries with trade surpluses, imports are increasing faster and value of export is declining.
- Cereals, especially maize and rice, are the most important staple food, but performance has been characterized by fluctuating and low annual growth rates (1.5 percent average since 1995). Oil crops and pulses have seen similar evolution.
- Cassava has been the best performing food crop, particularly in West Africa. Annual growth rate increased from 2.8 percent in the 1960s and 1970s to 6.5 percent since the mid- 1980s. It is also gaining ground in Southern and East Africa.
- Fruit and vegetables have become an important export crop, export value growing at an annual average of 5.3 percent between 1961to 2003.
- Coffee, tea, cocoa and cotton, which represent 40 to 50 percent of SSA agricultural exports, have performed unevenly. After a good period in the 1960s and early 1970s, they suffered a setback and have since grown slowly. Tea stands out as a success, as it continued to grow at around 3.8 percent albeit concentrated in a few countries. Yet SSA still accounts for 69 percent of world cocoa production with 98 percent of it coming from four West and Central African countries.
- Milk and meat production growth has been below population increase, despite some localized successes.
- SSA fish catch and export increased in the last two decades at the rate of 8.8 percent and 5.8 percent, respectively, with Southern and West Africa doing particularly well. Marine fishing accounts for two-thirds of fish catch in SSA, and more than 90 percent of the landings occur on the West Coast. Between 25 and 30 percent of marine fish is by vessels from non-African states and remains unrecorded as African fish output.

Conclusions

The performance of agriculture in SSA has been disappointing and below what is needed if it is to play a role of lead sector for development and food security. However, the alleged negative impact of structural adjustment programmes on agriculture is not confirmed by figures: African agriculture has grown more rapidly in recent years than in the years preceding reform. Additional analysis would, however, be required to understand better to whose benefit was the growth of agriculture observed after 1985, and why it has not translated into a commensurate improvement of food security.

Apart from cassava, food production has been growing slowly. Among exports, tea and fruits and vegetables are relative successes. In chapter 6, we analyse the factors that explain some of the advances made. The next chapter will review the key constraints that have been hindering agricultural development in SSA countries.

Chapter 5: Agricultural development constraints and opportunities

The preceding chapter reviewed performance of the agriculture sector in sub-Saharan Africa (SSA) and showed that agricultural growth in the region had been characterized by up-and-down swings since the early 1960s, but that in recent years, annual growth has been around an encouraging average of 3.9 percent.

Considering the importance of agriculture for poverty reduction and food security (established in Chapter 3), it is important now to analyse agricultural development constraints and opportunities in the region, in order to chart the way in which agriculture development could be boosted and to identify the areas in need of public support.

Some observers believe that the poor performance of agriculture in SSA has been a consequence of underinvestment in the sector and the abrupt disengagement of governments from the agricultural sector following liberalization reforms. The driving force for the withdrawal has often been identified as international pressure on governments to embrace the new economic orthodoxy of liberal economics, which requires that governments desist from direct engagement in any economic and productive activities and downsize their prominence in national economies.

This chapter reviews key constraints that have hampered agricultural development and identifies existing opportunities that SSA countries could tap into to increase the performance of their agriculture and ultimately reduce food insecurity and poverty. Constraints have been regrouped in five categories:

(i) political unrest and armed conflicts
(ii) policy and institutions
(iii) constraints on access to resources and expansion of cultivated area
(iv) constraints on productivity improvement and control of post-harvest losses
(v) constraints on good functioning of markets

Furthermore, the chapter discusses the adequacy of agricultural financing in SSA in terms of domestic budgetary allocation and external development assistance. It then concludes by addressing two cardinal but interrelated questions; (a) does it pay to invest more public resources in African agriculture?, and (b) does increased reliance on commercial imports and food aid represent a cheaper option?

5.1 Political unrest and armed conflicts

The correlation between political stability and economic performance cannot be made more evident than by the very poor agriculture and food-security performance observed in conflict-affected countries, as described in previous chapters. The worst SSA performers in terms of daily per capita calorie intake during the period 1990 to 2002 were Burundi, Democratic Republic of the Congo, Guinea-Bissau, Eritrea and Liberia. These are all countries where there is great political instability or armed conflict, which naturally affect the performance of the economy in many ways.

Budgets and human resources are in large part diverted to defence and internal-security activities, private investment, both domestic and foreign, remains insignificant due to high risk; markets and other services are disrupted, making it difficult for producers to operate normally; infrastructure and private property are destroyed, and so on. Agriculture is often one of the most affected sectors. Farmers constitute a large proportion of the conscripts in armies or militias, depriving agriculture of workers. Rural populations are displaced or take refuge in urban centres, leaving their fields unattended, with drastic consequences on crop

production or survival of livestock herds. Social ties and capital are dislocated. Rural infrastructure essential for any economic activity, is shattered or crippled by land mines.

The prevalence of peace and stability is therefore an absolute prerequisite for sustainable agricultural and overall economic prosperity. Success in solving and preventing conflicts would strongly contribute to improving the food security situation in SSA. This constitutes a key challenge for the region.

5.2 Non-conducive policy environment and poor institutional framework

Political commitments, institutional capacity and public policies in favour of agriculture and rural development are generally inadequate and weak. The macroeconomic environment is often unstable, and the legislative framework is weak, missing or not properly enforced thereby undermining private sector involvement and investment. The agriculture and rural development-related institutions are generally ill-equipped to analyse, formulate, and effectively implement, monitor and evaluate sector and subsector policies and programmes. Institutional capacity to conduct research and development activities, as well as to disseminate research findings through effective extension programmes, also leaves much to be desired.

The economic history of SSA countries shows that since independence, development policies and strategies, including those impinging on agriculture, have gone through several phases. Since the 1990s, countries have undergone drastic economic and institutional reforms. Failure to meet expected results in the agriculture sector - despite encouraging results observed in some countries - is generally ascribed to poor policy formulation or lack of capacity of governments to implement policies and strategies, especially in those countries that are not plagued by war or civil unrest.

Although some may argue that failure could be due, at least in part, to inadequate policies resulting from analyses that do not take into account the political context in which they will have to be implemented, or to insufficient elaboration of the practical way they will be put in action (Omamo, 2003), some political economy analysts underline that economic reforms proposed in structural adjustment packages have in most cases not been fully applied. Others refer to the neo-patrimonial nature of the states – particularly in the case of Southern Africa, where most of the poorly performing countries not afflicted by conflict are located – wherein a type of traditional political authority coexists with bureaucracy in which the “chief” uses his position to appropriate state resources for his own personal gain or that of his clients (Weber, 1974) - (Van der Walle, 2001).

Despite democratization observed in an increasing number of countries, the political set-up in SSA is still generally characterized by a strong executive, largely inefficient and often corrupt civil service and weak civil society organizations (Bird *et al.,* 2003). These characteristics promote policies and government intervention that protect the interests of social groups that are strongly linked to power and the selected implementation of reforms – the so-called “taming of structural adjustment” (Chabal and Daloz, 1999). Macroeconomic stabilization policies are, generally, broadly enforced, as they are less threatening to the system in place, provided that expenditures on defence, internal security, diplomacy and those in direct benefit of state elites are protected. Meanwhile, structural reforms that could undermine the relations of patronage underpinning the political order are mostly left aside.

When privatization policies are implemented or public contracts awarded, they are sometimes managed in a non-competitive way, resulting in the transfer of public property or rents to well-connected persons. In other cases, markets have been destabilized by deliberate misinformation and unconvincing promises (Ravallion, 1987). These methods hamper the emergence of competitive markets – a key result sought by reforms, and which is

a key to the expected economic growth – and establish or protect monopolies or oligopolies. Reforms are often endorsed in principle to get access to donor funding, but not really put in practice. There is usually a disconnect between the principles guiding the stated economic policy and those underpinning the sociopolitical system.

Policies in SSA also tend to have an urban bias. Ensuring the supply of cheap food to the urban population is a priority to prevent social unrest and preserve state legitimacy; this encourages using public funds to import and store food, or welcoming food aid from abroad, usually with deleterious impact on agricultural development. Lipton (1977) and Bates (1981) had already argued that the most important conflict in poor countries was between rural and urban groups. Examples are numerous in which agricultural policies are used to reinforce groups supporting the regime (such as land reform, or subsidized agricultural credit with little effort to enforce reimbursement) or as political instruments (e.g. use of state resources to fund political campaigns). Practice frequently differs from stated policy. For example, the officially approved policy statement discussed with development partners may commit the government to remove input subsidies. However, annual budgets discussed in parliament may show a large proportion of funds used for exactly that purpose.

Food security rarely becomes a real priority political issue unless large numbers of urban dwellers are affected, increasing the risk of civil unrest and riots (Maxwell, 1998). Changing the rural-urban balance and fuelling political tension in urban areas, increasing flows of poor rural migrants to African cities and the resulting “urbanization of poverty” largely undermined the intended pro-rural bias of structural adjustment packages.

Although the problems of nepotism and lack of transparency, which can be summarized as poor governance, are pervasive in SSA, it is simplistic to conclude that all SSA governments are corrupt. There are those who genuinely strive to develop their food and agriculture sector. However, their aim is not matched by results due to a number of limiting factors. The problems they face are complex, and in some cases further complicated by exogenous factors. The most salient cause, however, is the sudden retreat of the public sector from active engagement in agriculture following the sweeping reforms implemented during the 1980s and early 1990s, and the downsizing of all public institutions. Agriculture has been generally underfunded and related institutions have been unable to maintain a critical mass of expertise due to staff retrenchment, as well as loss of their most experienced and competent staff to internal and external competitors offering better conditions of service. These include international development agencies, financial institutions, non governmental organizations (NGOs) and donor-funded programmes.

The often-mentioned "brain-drain" of African skilled manpower to industrialized and middle-income countries is not an exaggeration, but a plain fact. The problem is particularly serious in countries facing political instability, wars and civil strife (Selassie, 2001). However, the African population is characterized by high resilience, considerable dynamism, initiative and entrepreneurial capacity, which for the time being has been mostly confined to the private sector, and which would need to be channelled and enhanced through capacity-building. Government institutions have remained understaffed both in terms of quantity and quality, and even with the best of intentions they are unable to fulfil effectively their core functions of providing policy and regulatory framework services as stipulated in the reforms.

It might therefore be futile to discuss capacity-building in SSA through staff development programmes, unless countries can provide the right environment and incentive structure so that the most trained and qualified staff could remain in their current institutions, or at least in the country.

Box 5.1: The brain-drain of Africa

Africa's ongoing development efforts will continue to be undermined as long as the current phenomenon of human capital flight, or 'brain-drain" as it is commonly known, continues. Thousands of highly skilled professionals leave the continent every year for opportunities in the developed world, so that poor African economies lose their best human capital while spending precious money on educating and training replacements. The need to reverse this ongoing problem, as well as to build and effectively utilize capacities, is now widely acknowledged as a major challenge for African development in the twenty-first century. Brain-drain is not a new phenomenon, but has risen sharply in recent years. Between 1960 and 1975 an estimated 27,000 highly qualified Africans left the continent for the West. This number increased to approximately 40 000 between 1975 and 1984, and then almost doubled by 1987, representing 30 percent of the highly skilled manpower stock. Africa lost 60,000 professionals (doctors, university lecturers, engineers, etc.) between 1985 and 1990, and has been losing an average of 20,000 annually ever since.

Source: World Market Research Centre, 2001

Box 5.2: Some basic figures on agricultural research in Mozambique and Brazil

The total number of staff in the recently established Mozambican Institute for Agricultural Research (IIAM) is 902 people. Only 2 percent of those researchers hold MSc and PhD degrees. Therefore, there is a great need to train a much larger number of scientists for Mozambique to develop a full-scale research capability, especially at both masters and doctorate levels. Even though salary is not the main motivation factor, Mozambican researchers earn an equivalent average salary of US$200 per month.

In Brazil, the Brazilian Agricultural Research Corporation (EMBRAPA) is a public corporation linked to the Ministry of Agriculture. It has 37 research centres and 3 service centres, and is present in almost all 24 Brazilian states. There are 8,169 employees, of whom 2 221 are researchers with master's degrees and more than 1150 with doctoral degrees. Average salary is US$1 700 per month.

Source: S. Ramagen, FAO, written communication

5.3 Constraints on access to resources for expansion of cultivated area

Naturally agricultural growth will have to come either through expansion, i.e. increasing land under cultivation, or intensification, i.e. improving productivity, or diversification into high value crops or through a combination of all three.

The prospect for increasing agricultural production growth through expansion of land under cultivation depends on the availability and quality of the three basic production factors: land, capital and labour. Equally important, of course, is their effective management, which in turn is linked to the institutional, policy and governance issues discussed above.

5.3.1 Availability and access to land

Land is the most critical resource for agriculture. However, a combination of rigidities in the tenure systems and limited physical accessibility make the option of increased agricultural production through expansion unrealistic option in many SSA countries.

The most prevalent land-holding systems in SSA are communal and government ownership: "in West Africa, less than 2 per cent of land is held by paper title, and that is mainly in towns. Most people hold rights to land and property through social bonds with wider family or

neighbours. Land registration is inaccessible to most of the population"[28]. In many cases, communal or government ownership of land do not ensure sufficient security of access to land to encourage investment in land improvements or in perennial crops. In those countries where tenure is communal, land is in the custody of the local chiefs who distribute it to community members under a multitude of rules and restrictions that need to be codified and sometimes streamlined.

Land legislation, except in rare cases, does not favour partnerships between communities and external investors with capital and know-how. It has also been found to allow nullification of community members of their rights of access when powerful private investors exert pressure or bribe local leaders. Furthermore, women's access is often in the name of their husband, which they forfeit upon divorce or in the event of death of the husband. The system does not allow for a land market, and this contributes to the pervasive land fragmentation and inefficient utilization observed in many SSA countries. Reform in these areas would certainly go a long way to facilitate expansion of agriculture and investment in land improvement, but it should not be limited to land titling programmes, as past evaluation of such programmes in Africa have shown mixed results[29].

Box 5.3: Land distribution in Zimbabwe

The Presidential Land Review Committee on the Implementation of the Fast Track Land Reform Programme established that nationally, a total of 2 652 farms with a combined area of 4 231 080 hectares had been allocated to 127 192 households under the A1 resettlement model as of 31 July 2003. The take-up rate by beneficiaries was 97 percent. As for the A2 resettlement model, the corresponding figures were 1 672 farms, amounting to 2 198 814 hectares for 7 260 applicant beneficiaries. The take-up rate under this model, however, ranged from 42 percent (Manicaland) to 100 percent (Matabeleland South), with an average take-up rate of 66 percent nationally. This failure by some 34 percent of applicants to take up their allocations implied a considerable amount of land lying fallow or unused while, ironically, thousands of would-be A2 beneficiaries were pressuring the authorities to allocate land.

Source: Report of Presidential Land Review Committee on the Implementation of the Fast Track Land Reform Programme ('The Utete Report'), 2003, quoted in Kidane – Zimbabwe Agriculture Sector Brief, 2003.

Apart from tenure constraints, expansion of cultivated land is not always feasible due to problems of supply. Contrary to the wide belief of abundant availability of agricultural land in Africa, per capita land availability is dwindling due to a combination of population pressure and lack of alternative employment opportunities, land degradation and desertification. The most land-constrained countries include Burundi, Ethiopia, Kenya and Rwanda. Yet recent production increases noted in some of these countries is attributed to area expansion, as marginal, grazing and forest lands have been switched to crop production with adverse effect on sustainable livelihoods and the environment.

There still remain opportunities for expanding land for sustainable cultivation in certain parts of SSA, provided infrastructure is established to facilitate access and measures are put in place to protect land from erosion and degradation.

[28] Camilla Toulmin, Director of the International Institute for Environment and Development, London in "The new tragedy of the commons", *New Statesman* Special Issue, March 2005.
[29] Barrows and Roth, 1989. "Land tenure and investment in African agriculture: theory and evidence". LTC Paper No. 136. Madison, WI, USA, Land Tenure Center, University of Wisconsin.

5.3.2 Access to traction power and labour

In countries where land is not a constraint, expansion of cultivated land is often limited by low traction power. Africa's agriculture is dominated by a hoe culture; animal traction has not been widely adopted and mechanical traction is restricted to a very few farms in a few countries. On-farm capital is reduced to bare minimum.

Although the trend in tractor use shows a modest increase, the use of farm machinery in SSA, compared with other regions of the world, still remains very low. After an increase of more than 5 percent per annum between 1961 and 1973, the number of total tractors in use rose only by about 2 percent and 1 percent during the periods 1973-1994 and 1995-2002, respectively. In terms of the value of total agricultural machinery imported, the import value increased from around US$151 million per annum from 1961 to 1973 to US$763 million per annum between 1974 and 1984. However, it declined again, to below US$600 million thereafter[30]. The pattern corresponds to periods of active government involvement in the development of agriculture following independence and to its withdrawal at the time of the structural adjustment programmes. It also mirrors the decline in ODA assistance and foreign investment in the sector.

The smallholder farming sector is the most undercapitalized: hoe-based agriculture does not allow the majority of smallholder farmers in SSA to cultivate more than one hectare when depending solely on family labour. This implies low productivity of labour and therefore low income.

Low productivity of labour in agriculture puts the sector at a disadvantage in competition with alternative activities, including migration to urban areas. As noted in Chapter 3, smallholder farmers are engaged in off-farm income-generating activities to supplement their incomes. In some countries, employment opportunities are mainly with commercial farms (e.g. Malawi), where the demand for hired labour creates competition with smallholder-farm labour requirements. Elsewhere in SSA, small-scale processing, petty trading and migration (to cities or across borders) compete with agricultural labour needs, with the result in some areas that the most dynamic elements of the population have left agriculture. However, if the right incentives were in place, resources generated by off-farm activities and remittances from migration could be invested and contribute to agriculture development.

The HIV/AIDS pandemic, especially in Southern and East Africa, has seriously affected the quantity and quality of agricultural labour. Numerous studies have documented the negative impact of HIV/AIDS on labour supply and productivity. Other communicable diseases have also negatively affected agriculture.

In conclusion, unless SSA countries create a condition for smallholder farmers to improve their labour productivity through technological change and enhanced capital assets, and/or invest in the development of labour-saving technologies, it is difficult to envisage a significant production increase through area expansion.

5.4 Increasing agricultural output and income through improved productivity and control of post-harvest losses

Given the limiting factors discussed above, SSA countries' best bet to increase production and improve household food security may well be through increasing crop yields and minimizing post-harvest losses. The factors militating against sustainable yield increases are briefly discussed below, and again the low level of farm capital is crucial among them.

[30] Based on FAOSTAT data, 2005

5.4.1 Recurrent droughts and under-investment in water control and irrigation

Agricultural development is fettered in many parts of SSA by recurrent droughts, which over the years have increased both in frequency and severity. The average incidence of serious drought has increased from around 7 during the period 1980-1990 to 10 during the period 1991 to 2003. On average, about 7 of the 43 SSA countries reviewed were affected during the first half of the 1990s, and this increased to around 13 during the late 1990s and the early part of the current decade (World Bank, 2004).

It can be argued that drought incidences are almost predictable in some countries. Thus, in these countries it should no longer be viewed as an issue of emergency but a phenomenon that countries should take into account in both their short- and long-term agricultural development strategies. This is particularly true for East and Southern African countries to some extent Sahelian countries.

Given the region's susceptibility to drought, investment in water harvesting techniques (along with strengthening the related technical and institutional capacities), expansion of land under recession and irrigated agriculture would be the most plausible option for stable and higher agricultural productivity. The potential exists to increase both smallholder and large-scale irrigation, although this naturally differs from one country to another. FAO estimates show "that there is sufficient water to develop about 42.5 million hectares of land under full irrigation. In 2000, less than one third of this physical potential, 12.7 million hectares, had been brought under water control (excluding the non-equipped cultivated wetlands, water harvesting, flood recession areas). It is estimated that these 12.7 million hectares use 4.4 percent of Africa's total water resource base. This represents between 10-15 percent of the total exploitable volume of renewable freshwater in watercourses, lakes and aquifers" (FAO, 2004a).

However, an analysis of irrigated agriculture in 41 SSA countries for the period 1990-2002 reveals that the proportion of irrigated agriculture is as low as 2.1 percent excluding South Africa, and 2.8 percent if South Africa is included. In terms of relative significance of irrigated agriculture by country, it is only significant (more than 10 percent of total cultivated land) in 5 of the 41 SSA countries reviewed. These are Swaziland (36 percent), Madagascar (31 percent), Sao Tome and Principe (22 percent), Mauritius (18 percent) and Mauritania (10.4 percent). In 25 countries, irrigated agriculture represents less than 2 percent (see Table 5.1)[31].

It is worth noting that Ethiopia, which faced 15 serious droughts during the last 23 years that resulted in serious crop failures and famines, is currently utilizing only 2 percent of its 3.7 million hectares of potential irrigable area. Similarly, the Southern Africa region, which is the home for some of the continent's major rivers and water bodies, offers a considerable potential for expanding irrigated agriculture. Yet drought-induced crop failures are common in the subregion, the worst being the one in 1992 which resulted in acute food shortages that had to be met through massive food aid.

At this juncture, it is appropriate to underline that the "agricultural miracle" of Southeast Asia has been associated with the expansion of irrigated agriculture. In those countries, irrigated agriculture grew from around 20 percent in the 1960s to 40 percent today. It has also grown significantly in other regions (see Figure 5.1). The increase in agricultural production that brought Egypt close to food self-sufficiency is also attributed to the expansion of irrigation, after the construction of the Aswan Dam.

[31] Countries excluded from the analysis are Seychelles, Somalia and Sudan, while Mauritania, though normally listed in North Africa in FAO classification, is included.

Table 5.1: Significance of irrigated agriculture in SSA countries

Period	>10%	5-10%	3-5%	2-3%	1-2%	<1%	Average %
1961-1969	Swaziland, Madagascar, Mauritius, Sao Tome, Principe	Mauritania, Cape Verde, South Africa, Mali, Guinea Bissau	Senegal, Gabon	Angola	Guinea, Burundi, Zimbabwe, Tanzania, Ethiopia	others	1.7
1970-1979	Swaziland, Madagascar, Mauritius, Sao Tome, Mauritania	South Africa, Guinea Bissau, Guinea, C. Verde	Mali, Burundi, Senegal	Angola, Tanzania, Zimbabwe, Gabon	Mozambique Ethiopia	others	2.0
1980-1989	Swaziland, Madagascar, Mauritius, Sao Tome, Mauritania	South Africa, Guinea, Cape Verde, Burundi	Mali, Guinea Bissau, Senegal, Zimbabwe, Tanzania	Angola, Gabon, Mozambique	Ethiopia, Côte d'Ivoire, Nigeria, Kenya, Malawi	others	2.5
1990-2002	Swaziland, Madagascar, Mauritius, Sao Tome,	Mauritania, Cape Verde, South Africa, Burundi, G. Bissau	Mali, Guinea Bissau, Zimbabwe, Tanzania Eritrea	Senegal, Angola, Gabon, Mozambique	Ethiopia, Côte d'Ivoire, Nigeria, Kenya, Malawi	others	2.8

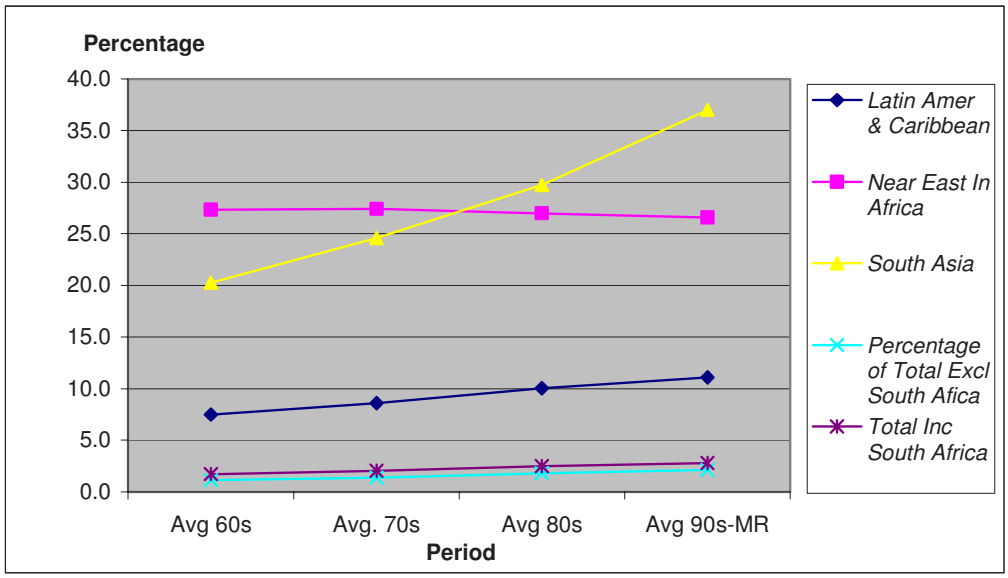
Source: FAOSTAT data, 2005

A number of constraints, however, hinder irrigation development in SSA. The causes include a weak institutional set-up and capacity, and very high costs of irrigation development. In a recent FAO study, Westlake and Ridell underline that: "An irrigation sector is clearly ... more than mere infrastructure. It has both physical and non-physical elements, and success with one does not necessarily guarantee success with the other; although it is more usual that successful non-physical interventions result in better use of inadequate infrastructure than vice-versa" (Westlake and Ridell, 2003). The estimated average investment per hectare in SSA ranges from US$2 000 to US$4 000 for small-scale and from US$9 000 to US$15 000 for large scale irrigation. In India, the comparable cost ranges from US$1 500 to US$2 000 (NEPAD, 2002; Sivanappan, 1997). High costs are generally blamed on extensive use of foreign expertise to establish new irrigation schemes because of limited local capacity, but these can be reduced for the state by more participation of beneficiaries. These costs, coupled with poor credit services, make expansion of smallholder irrigation difficult in the region. There is, however, besides the establishment of new irrigation schemes, considerable scope for rehabilitation and upgrading of existing systems, as well as new run-of-river and new storage-based schemes.

There has been an ongoing debate in the region on whether irrigation strategies should give priority to large-scale or smallholder irrigation. Considering that agriculture can best impact on poverty and food security if the benefits of its development are reaped by the poor (Chapter 3), priority should be given to the development of small-scale irrigation. The analysis should not be approached in exclusive terms, however. Unsatisfactory experience with large-scale irrigation schemes in SSA was generally a consequence of the weak institutional infrastructure on which they usually rested, including inefficient public-sector institutions with poor management and limited ability to provide adequate support services. Nevertheless, there are some success stories in cases where the private sector took the lead and government role was mostly confined to facilitating access to credit, creating a favourable policy environment and providing technical support. This was the case in the

Awash Valley of Ethiopia in the late 1960s and early 1970s; a trend that was interrupted with the regime change in 1974 that nationalized all large-scale commercial farms. In the case of Mauritius, the increase of irrigated agriculture from 15 percent of total cultivated land in the 1980s to more than 20 percent in the 1990s was accompanied by supportive government policies and effective partnership between the public and private sectors.

Figure 5.1: Regional comparison of irrigated agriculture

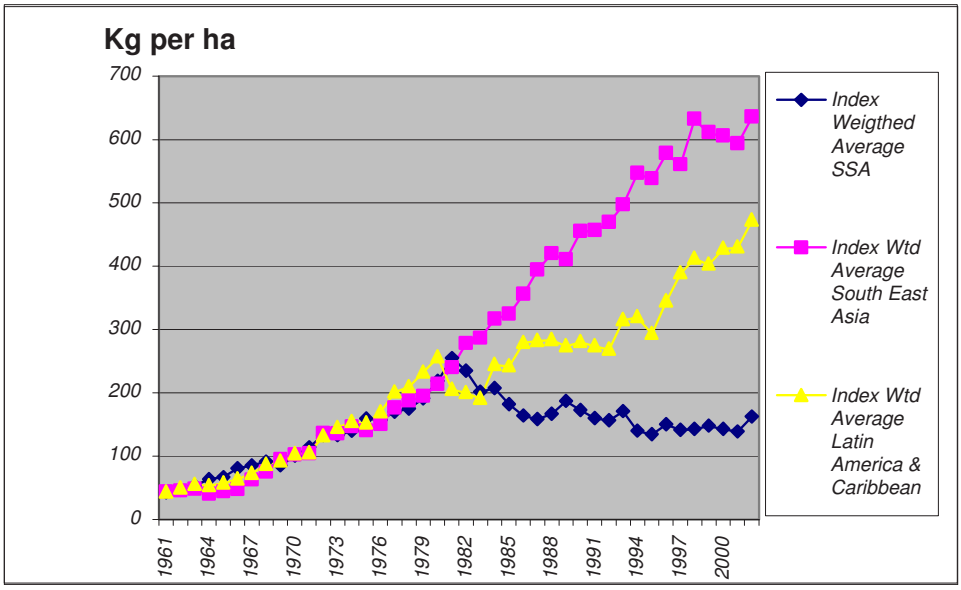


Source: FAOSTAT data, 2005

5.4.2 Soil fertility management

Agriculture in SSA is characterized by low input and low output technology. Average cereal yield varies between 1.3 and 1.4 tonnes per hectare, though this figure masks differences among countries that range from 0.2 in Botswana to 4 tonnes in Mauritius. Fertilizer application in SSA is the lowest in the world and declining, even though soils are generally considered as poor compared with those in Latin America or Asia. Average fertilizer application was around 35 Kg/ha during the 1980s, but it declined to around 26 Kg/ha in the 1990s and the beginning of the current decade. The reasons for this decline generally include increased price of fertilizer and reduced access to credit. In contrast, there has been a marked increase during the period in Southeast Asia and Latin America, from around 50Kg and 100Kg to 150 and 200 Kg, respectively - increases of 300 and 200 percent. Improved fertility management such as improved use of organic fertilizer and agroforestry are rare because of weak extension, thus resulting in soil degradation (Figure 5.2).

Figure 5.2: Fertilizer consumption index



Source: Based on FAOSTAT data (surface of cereals), 2005

5.4.3 Research, extension and credit services

A host of constraints explain the lack of availability of appropriate productive technologies in Africa. One of them is the weakness of agricultural research and development (RD) programmes. These programmes have generally been ineffective and are getting weaker for lack of funding and shortage of experts. In those cases where improved technologies have been developed or adapted under national research programmes, they rarely reached the farming communities because of poor extension services (which often do not reach women, whose role in SSA agriculture is crucial), absence of credit facilities and limited capacity to mobilize financing through other means such as savings.

It is striking to observe that, whereas improved varieties account for as much as 70 to 90 percent of crop yield observed in Asia and the Near East, they only account for 28 percent in Africa (Sanchez, 2004). Furthermore, research often failed to respond to the needs of farmers due to inadequate research-extension and research-farmer linkages. Some have argued that a more diversified agriculture lies behind the relatively better results achieved in West Africa (Ruthenberg, 1976). This would indicate the need to strengthen farming-systems research, rather than commodity-based research.

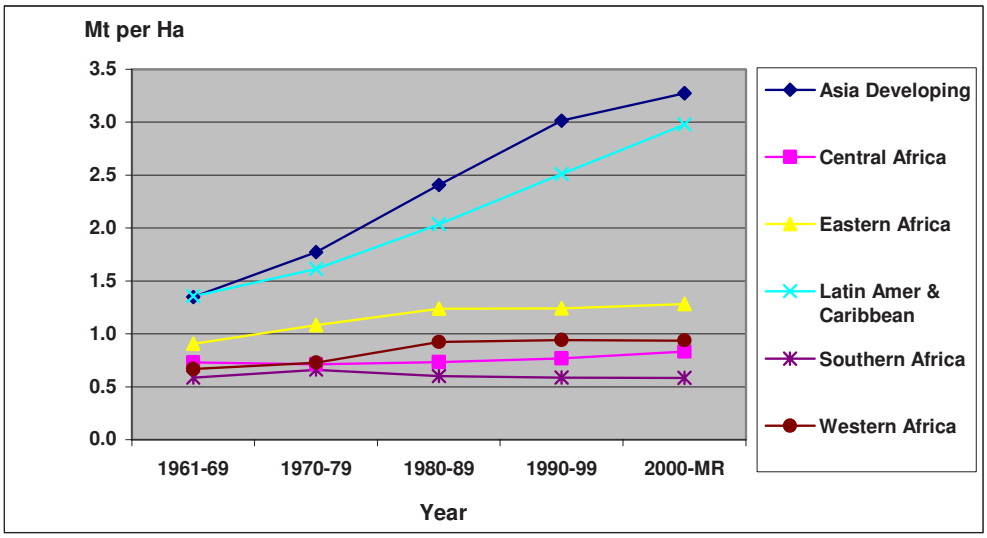
Some analysts suggest that an inappropriate policy and regulatory framework lies at the root of the limitation to private and public sector partnership in SSA in the provision of extension and research services (Gordon, 2000). Many SSA countries are also relatively small with limited resources that make it impossible to put in place a critical research capacity. This calls for promoting bilateral and regional collaboration in research activities, based on agro-ecological zones, in which the regional economic organizations and existing research networks could play an important part.

Lack of access to and availability of improved agricultural technologies and inputs, combined with inadequate agricultural supporting services, are reflected in the generally low yields observed in SSA. A comparative cereal-yield analysis of the different subregions of SSA with those in Latin America and the Caribbean and in developing Asia shows that yields in Africa

are in general lagging further and further behind those in the other two regions. The difference was already significant in the 1960s, but in recent years the difference has been 3 to 4 times higher than the average yields in SSA.

Yields are relatively higher in East Africa, where the average since the 1990s has been in the range of 1.2 tonnes/ha; the lowest yields have been observed in southern Africa with less than 0.6 tonnes per hectare. Even in the other remaining subregions, yields have remained below 1 tonne per hectare and increases since 1980 have been marginal (Figure 5.3).

Figure 5.3: Cereal yield comparison – SSA subregions, Asia-Developing, and Latin America/Caribbean



Source: FAOSTAT data, 2005

An analysis of yield performance by country (Table 5.2) reveals that in two of three SSA countries, the annual cereal yield increment is below the rate of population growth, which averaged around 3 percent. In about one out of four countries, the average annual yield increment is negative, and in a little less than half of the countries the increment is less than 1 percent.

Table 5.2: Analysis of annual cereal yield variation over five periods (no. of countries and percentages)

Period	More than 3%	2 to 3%	1 to 2%	0 to 1%	Negative Growth
1961-69	15 (34.1%)	1 (2.3%)	7 (15.9%)	9 (20.5%)	12 (27.3%)
1970-79	12 (27.3%)	6 (13.6%)	5 (11.4%)	9 (20.5%)	12 (27.3%)
1980-89	19 (43.2%)	8 (18.2%)	5 (11.4%)	5 (11.4%)	7 (15.9%)
1990-99	19 (41.3%)	5 (10.9%)	3 (6.5%)	9 (19.6%)	10 (21.7%)
2000-04	9 (19.6%)	7 (15.2%)	3 (6.5%)	8 (17.4%)	19 (41.3%)
Average	**15 (33%)**	**5 (12.0%)**	**5 (12.0%)**	**8 (17.8%)**	**12 (26.7)**

Source: FAOSTAT data, 2005

An attempt was made to analyse the trend in yield increment by individual countries. However, no consistent picture emerged. Yield increment during one year is in a number of cases followed by a serious decline the next year. This was to be expected, given the susceptibility of SSA agriculture to rainfall and such calamities as pests and diseases.

Nevertheless, an in-depth analysis at a country level would be required for effective design of development interventions. What is clear is that there is ample scope to increase agricultural production in SSA, if one takes as reference performance observed elsewhere.

5.4.4 Post-harvest losses

The low domestic production of food production in SSA is compounded by an unacceptable level of post-harvest losses due to poor storage technology and facilities. Although there is no reliable information on the exact extent of post-harvest losses, the average waste for cereals is estimated to be between 10 and 15 percent (FAOSTAT, 2005), but losses can be as much as 30 percent of the total grain output in some cases (Demeke, *et al* 2004). The more pessimistic scenario is given by the United Nations Environment Programme (UNEP) which put the figure at between 25 and 50 percent (UNEP, 1992), while the most modest figures given range from 10-20 percent for cereals and 20-100 percent for fruits and vegetables (New Agriculturist, 2005)[32].

A lot has been written on the factors contributing to the massive post harvest losses in general and SSA countries in particular. Suffice is to note here that the cardinal problems are inadequate extension and marketing services, lack of adequate storage facilities due to combination of inadequate supply of appropriate technology and, where they exist, lack of credit or own capital for smallholder farmers to acquire them, etc.

5.5 Constraints related to marketing and market access

The importance of efficient marketing and market access for both inputs and outputs to guarantee sustainable agricultural development and food security cannot be overemphasized. This section reviews the constraints impeding the emergence of efficient agricultural marketing systems in SSA as well as the evolution of barter and international terms of trade and their impact.

5.5.1 Market infrastructure and market information

Africa is characterized by weak market infrastructure. Transport costs are very high due to inadequate infrastructure and monopolistic behaviour by economic agents. While the cost of transporting a tonne of maize over 11 000 km from the United States to Mombassa ranges from US$45 to US$48, the transport cost from Mombassa to Mbrara in Uganda (only 1 500Km) ranges from US$125 to US$140. Although the mode of transport used is not the same, the enormous disparity noted is attributed to poor infrastructure. As already discussed in Chapter 2 (see Table 2.7), road connectivity in SSA is generally poor and less than 40 percent of roads are paved. The poor state of road infrastructure in SSA is often attributed to governments putting priority on infrastructure in urban areas, ports and links among cities or between cities and ports, rather than between producing areas and main markets.

Comparative studies have also shown that rural transport costs in Ghana and Zimbabwe are two to three times higher than in Pakistan, Sri Lanka and Thailand, for distances up to 30 kilometres. Transport costs considerably increase during the rainy season, for example by up to 65 percent in Tanzania (Hine and Ellis, 2001).

In situations of emergency, agencies providing food aid and beneficiary governments often allocate substantial resources to infrastructure work, mostly for improving port facilities and transport infrastructure between the main port and food deficit areas. Only in some cases do these improvements prove useful for improving connectivity of the most important food production areas. In fact, these investments tend to increase further the competitiveness of imported goods, while possibly facilitating some exports (mostly of goods produced in urban

[32] New Agriculturist, http://www.new-agri.co.uk/99-5/develop/dev04.html

areas). It is recognized that food aid projects have sometimes been instrumental in improving rural feeder roads through food-for-work programmes, but the importance of this type of programme has been reduced over time (see Chapter 2).

The combination of poor infrastructure and lack of information, have made market failures to be the norm rather than the exception in SSA. Some of this can also be attributed to linearization. The private sector, which was assumed to fill the vacuum created by the closure of parastatal institutions in the aftermath of economic liberalization and privatization, has lacked the capacity to take up the marketing function. Its scope of operation does not normally extend beyond well-connected markets. As a result, monopolistic and monopsonic tendencies have appeared in many countries, particularly in less accessible areas, resulting in unfair trading practices (FAO, 2002).

"Soft" market infrastructure is also wanting. This includes regulatory framework for markets to operate competitively, and standards and norms to ensure proper quality and safety of products, protect consumers and open up opportunities for export.

In recent years, however, there has been some change in the mode of operation and structure of markets. Contract farming has developed as a potentially beneficial business arrangement aimed at guaranteeing market access and support services to farmers, on the one hand, and provision of timely and quality supplies of input to downstream agents[33] on the other (Eaton and Shepherd, 2001).

However, sometimes contract farming in SSA has developed in a way that is unfavourable to producers, and in a manner that was slowed down by the frail legal framework. Furthermore, with increased urbanization has come the development of supermarkets, which adopt similar practices to those used in developed countries, restricting the possibility for smallholders to participate in these new ways of doing business.

Other constraints affecting both domestic and international trading include lack of appropriate grading and standardization, and adequate market information. Market information can encourage more transparency and competition, help those (private or public) who store food to predict future scarcities, assess import needs, track forthcoming crises and contribute to stabilizing markets (Ravallion, 1987).

Box 5.4: Post-liberalization marketing in Zambia

"One of the expected effects of deregulation and privatization is increased competition. In the remote areas, especially those with poor infrastructure, only a few firms are providing services. A few firms in some rural areas of Southern Province are operating as monopsonies, and most of the maize traders (75 percent) purchased their requirements within the town radius. This means that there are only a few traders operating in rural areas with little or no competition. The few rural buyers of agricultural products often collude not to pay above certain prices (some kind of loose cartels). In this way the principle of free market competition is defeated. The major complaint is that some traders set producer prices below the break-even point, and are therefore discouraging farmers from continued production of those products."

Source: FAO, The Impact of Agricultural Parastatal Reform in Zambia, 1999

[33] Farmers are often provided with specialized services, input credit, training and extension by partners who strive to achieve some control and assurance over the quality and timeliness of delivered goods.

5.5.2 Deteriorating barter and international terms of trade

Farmers in SSA in general face low farm gate output and high input prices. While obtaining reliable price data in SSA is difficult, it is generally maintained that prices of inputs have escalated quicker than output prices in the aftermath of currency realignments, subsidy removal, tax reform and other changes prompted by structural adjustment programmes.

In theory, most agricultural products are tradable and should have benefited from the foreign exchange adjustments. However, input price increases were immediate, while adjustments in output prices lagged behind. Deterioration of relative prices between inputs and consumer goods reflects both domestic policy and changes in relative world prices. The combination of these two effects has often resulted in squeezing farmer earnings. For example, in Ethiopia, while the price of food increased by 12 percent from 1995 to 2000, the price of fertilizer (DAP) increased by 76 percent (Demeke *et al.*, 2004). This is partly explained by the removal of the fertilizer subsidy in 1998.

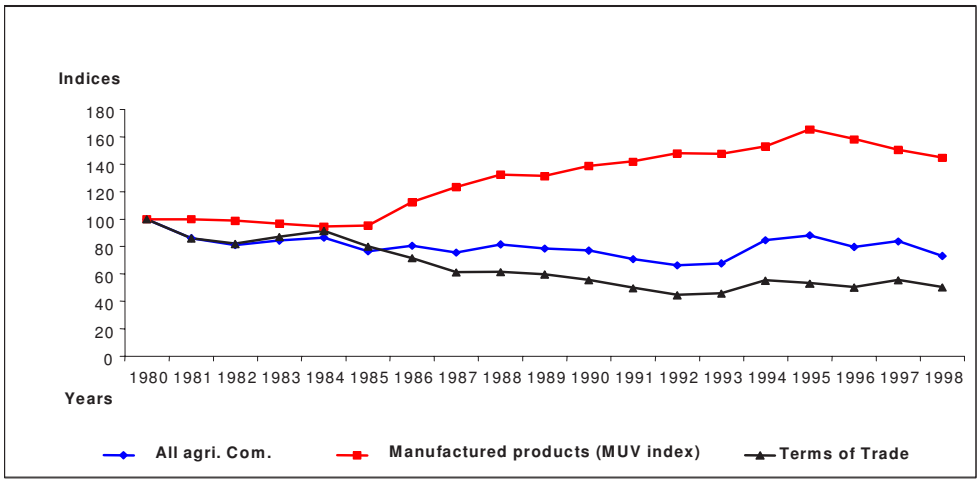
Exports of SSA countries is dominated by primary commodities - mainly tropical agricultural products and minerals, which account for more than 70 percent of total exports (Maetz and Fernandez 2000), while food items, oil, and manufactured goods are the major imports. Changes in relative world prices have implied that SSA countries have to export more units of agricultural commodities in order to be able to maintain a certain volume of imports of chemicals, farm machinery and other important inputs for production. The deterioration of world prices of agricultural commodities became pronounced in the 1980s when the prices of sugar, agricultural raw materials, beverage crops, cereals and meat fell by 50 percent.

Although, after a continuous slide since 1980, the decline in agricultural commodity prices came to a halt in 1988 and remained relatively stable thereafter, prices of manufactured products increased by 40 percent. For example, the slump in world coffee prices in 1986-1987 - Ethiopia's major export commodity - caused largely by world production in excess of consumption, resulted in a 40 percent fall in Ethiopia's terms of trade. Because imports were about 15 percent of the country's national expenditure, this adverse movement in its terms of trade resulted in a decline of about 6 percent in Ethiopia's real income (IMF, 2000). In general, the terms of trade between agricultural commodities and manufactured products fell by more than 50 percent in the mid-1990s vis-à-vis the mid-1980s (see Figure 5.4).

The coffee crisis has had tremendous economic impact in highly coffee export dependent countries like Burundi, Ethiopia, Rwanda and Uganda, where employment has been strongly affected. Volatility of world prices has also increased the vulnerability of SSA countries, although most extreme price variations have tended to be less frequent during the last two decades (FAO, 2004b).

By contrast food prices remained relatively stable, with a reduction of around 4 percent in US-dollar terms between 1995 and 2004, while the price index for all commodities increased by nearly 50 percent with energy prices rising by 28.5 percent (IMF, 2004). This is a result of a variety of factors, including global technological progress in agriculture – the main beneficiaries of which have been consumers and producers in better-endowed and more-developed regions – and price-inelasticity of demand for most agricultural commodities. For example, wheat yields have more than doubled in France and in the United States over the last 40 years (Février, 1986), while cereal yields only increased by slightly more than 30 percent in SSA (FAOSTAT, 2005). In the case of coffee, markets have become saturated as demand remains virtually unchanged, and prices have declined rapidly since 1998.

Figure 5.4: Terms of trade between agricultural commodities andmanufactured products (MUV)



Source: Maetz and Fernandez FAO, 2000

Prices of agricultural commodities are also depressed because of subsidies paid to the farming sector in developed countries. Estimates of the impact of those subsidies vary according to source or model, but the fact is widely acknowledged. For example, the United States Department of Agriculture (USDA) estimates that a full removal of farm subsidies in OECD countries would raise the price of wheat 18 percent, 15 percent for other grains, 22 percent for butter and 12 percent for beef (Diao *et al*., 2001). This would have considerable welfare and development implications in developing countries, including in SSA. Research also estimates that removal of U.S. subsidies on cotton would raise world cotton prices by 26 percent. Furthermore, several OECD countries have been transferring their food surplus to developing countries through food aid or dumping at prices lower than the cost of production and distribution with, in some cases, dramatic effects on local food producers who are no longer competitive on local markets (Dahlsten, 2004).

5.5.3 Unstable and uncertain input and output prices

Year-to-year and interseasonal price variations in SSA have been high, with adverse effects on farmer incomes. The interseasonal price variation can largely be explained by lack of storage facilities and absence of public sector price-stabilization measures such as consumption credits and price support. When pan-territorial and pan-temporal pricing policies were abolished, there was no mechanism put in place to ensure minimum farm gate prices, as is commonly done in the developed world. Some countries tried to institute the buyer-of-last-resort option in the framework of their strategic grain reserve schemes, but such policies have by and large now been phased out.

In agriculture, because demand is rigid and prices are unstable, a small change in the supplied quantity results in large differences in price. However, there is evidence that price and income volatility are detrimental to growth, because it induces coping strategies that impede investment and entrepreneurship. Risk also exacerbates income disparity because (when it remains uninsured) it hurts the poor while favouring the rich, who are able get into high-risk business opportunities and may obtain high returns. Credit becomes almost inaccessible in presence of high income variability. Thus, risk and uncertainty management are a critical part of farmer decision-making. A study by Boussard and Gerard of a series of

2 800 agricultural commodities prices and quantities shows a difference of about 2 points in growth rates between the "stable" and "unstable" series[34].

Furthermore, many smallholder farmers are compelled to sell part of their food to meet pressing cash requirements immediately after harvest when prices are lowest – a buyers' market – and buy back part of it during the lean season when prices are high – sellers' market. This phenomenon erodes farmer endowments, limiting their access to productive assets. Therefore, instituting mechanisms to prevent extreme price instability across years and seasons is a *sine qua non* for sustainable agricultural development in SSA.

Although there is no doubt that liberalization and privatization generally enhance economic efficiency, it is also evident that unless the smallholder sector operates in a stable economic environment, prospects for productivity increases and agricultural growth in SSA countries remain bleak. But economic reform has made "Smallholders ... much more vulnerable to global price volatility and uncertainty creating difficulties with regard to planting decisions, the ability to purchase inputs, obtain finance and/or credit, and accessing markets" (NRI, 2004).

Box 5.5: Agricultural market instability in sub-Saharan Africa

Fluctuations in prices may discourage farmers from producing for the market. Price risk, even more than technical risk, slows down productivity growth. Conversely, a stabilization policy can boost production. In the late 1970s Malawi's government, facing a risk of shortage, decided to guarantee a relatively high price for maize. This decision was immediately followed by a burst of production to the point that the Government was obliged to sell at a loss on international markets. The maize price was then lowered and subsequently level left to the market. Since then, Malawi has been a recurrent food aid recipient. What was wrong in the Malawi Government policy was probably to have promised a high guaranteed price whatever the production level. The guarantee should have been limited to a quantity slightly less than total predictable consumption, leaving the market to adjust for marginal quantities.

The negative consequences of price volatility are also felt by poor consumers and affected food security in general. Without market regulation, they will pay higher and unstable prices for food. The poor often spend more than half their expenditures on food, making them very sensitive to any increase in prices. This was indeed the primary reason motivating trade restrictions by governments isolating their market from high prices fluctuations. Food price stabilization is indeed recommended to combat poverty.

Based on: Boussard, Daviron, Gérard and Voituriez, *Background Document, Agriculture Development and Food Security in Sub-Saharan Africa, 2005*.

When, due to poor targeting or because it is provided in the context of programme or project aid, food aid delivery increases supply faster than it stimulates demand, it may exert downward pressure on food prices. It may then create disincentives for producers to invest in improved technologies or for marketing intermediaries in storage and transport capacity (Awudu, Barrett and Hoddinott, 2004). In principle, depressed food prices should theoretically hurt net food sellers while favouring net buyers (CIRAD, 2005).

From the foregoing, it is evident that the vicious circle of *low income-low purchasing power of inputs* and *low input application-low output-low income* needs to be broken if agriculture in SSA is to play its expected role as the growth engine for economic transformation and food security.

[34] Specifically, the average of growth of the most "unstable" series is about 4 percent a year, while it is 6 percent a year for the most stable. This difference is significant in terms of variance analysis, the main difficulty in the study being the definition of stability. See Boussard and Gérard, (1995).

5.6 Financing agricultural development

5.6.1 Declining trend in public support to agriculture

Addressing the above constraints requires increased direct public sector support to agriculture. Although the scope for SSA countries to increase significantly their budgetary allocation to agriculture is limited, they could certainly do more than at present. Food security and agriculture have, until recently, been given a relatively low importance on the political agenda of most SSA countries. A review of budgets in seven SSA countries (Ghana, Ethiopia, Kenya, Malawi, Nigeria, Tanzania and Zambia) between 1990 and 2001 reveals that the budgetary allocation has been low and declining. The share of agriculture in the total budget declined from around 5 percent in 1990/1991 to 3.5 percent in 2001/2002 (FAO, 2004b). The most significant decline was in Malawi, where the reduction has been from around 7 percent to only 4.2 percent. Within agriculture, specific subsectors such as animal production received ridiculously lower allocations compared to their economic weight (Rissa and Guerne Bliech, 2005). Furthermore, actual expenditure has been lower than allocation in all the seven countries reviewed.

The decreased share of public resources allocated to agriculture is often explained by the poor image the sector often has. It is perceived as stagnating, mainly constituted by subsistence farmers and not offering good opportunities for dynamic business. The change of political regimes may also have affected attention given to agriculture. Until the early 1990s, the political regimes were mostly not very democratic with high presence of technicians in governments: the ministries were, including agriculture, often ruled by technicians. More recently, a new class of (elected) politicians has emerged who have limited interest in agriculture (even the voters in rural areas are more interested in infrastructure and social services than in agriculture), and mutual distrust is common between them and the technicians (FAO, 2005).

A considerable share of public resources is also often spent on subsidies of private goods (e.g. agricultural commodities, private investment) to the detriment of public goods. In a study on the effect of structure of public expenditure in ten Latin American countries, López (2004) showed that “increasing public goods is likely to promote economic growth directly (as factors of production) and indirectly (through its positive effect on private investment), [while] increasing subsidies is more often than not deleterious for growth and private investment”. These subsidies are often the result of lobbying by small groups that have enough financial means and are capable of influencing policy and public opinion in a variety of ways.

5.6.2 Decline in official foreign aid for agriculture

The shrinkage of public expenditure on agriculture in SSA countries has not been matched by an increased flow of foreign development assistance and private sector investment, although some improvement has been observed recently for private investments in agro-industries in several countries (UNCTAD, 2004). Development aid – and particularly development aid in favour of agriculture, rural development and food security – has followed a declining trend.

According to OECD, total aid to Africa increased from around US$1 billion in 1960 to more than US$30 billion in 1991, before decreasing to less than US$20 billion at the turn of the century (OECD-DAC Statistics, 2005). This aid is distributed unequally with the world's poorer countries generally benefiting less. Beneficiary countries with less than 5 percent of their population undernourished received more than double the assistance per agricultural worker as others, as if aid was going to the successful rather than to the needy.
Donor fatigue and poor governance are often given as the reasons behind the decline in official development assistance (ODA). Furthermore, increasing share of ODA is being provided through general budgetary support, of which agriculture is often a victim. After a

peak of US$4.8 billion in 1989, aid to agriculture in Africa (of which about 75 percent is in favour of SSA countries) declined to a level slightly above US$2.5 billion after 1997. In recent years, this aid has been mainly concentrated on rural development and infrastructure and to a lesser extent on research and extension. These figures appear quite insignificant when compared with needs as estimated in the NEPAD Comprehensive Africa Agriculture Development Programme (CAADP), which reckons that more than US$240 billion would be required over the 2002-2015 period – an average of US$18 billion per year - to achieve the World Food Summit objective of reducing hunger by half in the whole of Africa (NEPAD, 2002).

It is also worth noting that total resources allocated to food aid (4.8 percent of total aid in 2002) were slightly higher than those provided for agriculture (4.7 percent of total) (OECD-DAC Statistics, 2005). This is exemplified in the case of the European Commission (EC) who allocates 5.5 percent of its aid to agriculture, forestry and fisheries and 7.3 percent for food aid (EC, 1999). The recent aftermath of the Asian tsunami has amply demonstrated that public opinion in developed countries is much more easily mobilized for emergency aid (including food aid) through spectacular media reports than for development aid: donor aid policy reflects this tendency for obvious internal political reasons. This phenomenon was also observed at the time of the 2000 floods in Mozambique and the Ethiopian famine in the mid-1980s.

Donor support to agriculture also implies donor involvement in and impact on national agriculture and food security policy. Donor coordination is often poor, and contradictions among donors often result in erratic action in the field. This can be aggravated when donors change approach on important policy issues or when government has to manage contradictory policy frameworks and timetables imposed by donors in order to access funding.

Competition among donors may also translate into provision of funding outside agreed policy or programme frameworks (i.e. sector programmes). External resources can sometimes fuel patrimonial political engines, especially when donors do not sufficiently account for politics in agricultural policy, are blind to corrupt practices and favour rapid disbursements. The “disarticulating” effect of donors is facilitated in the absence of a sufficiently broad and solid domestic policy community (Bird *et al*., 2003), which should include, in addition to national academics and experts, representatives of civil society organizations, producers and the private sector.

5.6.3 Low and declining capital endowment of sub-Saharan African agriculture and low productivity of labour

Decline in domestic and foreign funding of sub-Saharan African agriculture has resulted in a decline of capital stock per agricultural worker. Data available to FAO show that capital stock per agricultural worker in SSA (resulting from public and private investment in agricultural tools, machinery and equipment, land improvement and irrigation, permanent crops and livestock) decreased during the 1990s from US$1 295 to US$1 275 (FAOSTAT, 2004). Over the same period, this capital grew from US$8 200 to $9 000 in Latin America and the Caribbean, US$1 180 to US$1 250 in Asia and the Pacific, and from US$1 950 to US$2 150 in the North Africa (all in constant 1985 US$).

This data can be put in parallel with the level of value added per agricultural worker, which was about US$390 during the 1990s in SSA, US$414 in Asia, US$1 905 in North Africa and US$3 133 in Latin America and the Caribbean.

5.6.4 Is support to agriculture a profitable investment?

Irrespective of the reasons of governments or their partners, agriculture in SSA countries remains strapped for resources and the sector is unable to contribute adequately to the fight against poverty and food insecurity. Decision-makers seem to be unconvinced that investing in agriculture pays, and as a result many countries, especially in East and Southern Africa, have remained heavily dependent on food aid and commercial food imports.

The Prime Minister of Uganda, in his introductory speech to the first Meeting of the Ministers of Agriculture of the Common Market for East and Southern Africa (COMESA) in November 2002, summed up the situation this way: food insecurity in Africa can be explained by the fact that some decision-makers believe that there will always be "cold" money available in case of food emergency, and that it is better to invest their "hot" money into other activities.

However, food aid has not always been as rapidly available as wished, and sometimes arrives too late to save all those at risk. For instance, it takes more than five months on average for US emergency shipments to reach their destination (Barrett and Maxwell, 2004). Furthermore, depending on how food aid is managed, targeting errors have also often been reported, either in the form of exclusion or inclusion: people in need not being reached (with low humanitarian impact) and people not in need benefiting from food aid, hence displacing as much trade sales, generating labour disincentives and possible additional costs[35].

Food crises are not either as cheap as it may appear at first glance. Countries often end up spending quite substantial amounts of financial resources on funding the logistics of distributing the food aid and on supplementary commercial imports. The cost-benefit result from the donors' side also looks disappointing. Barrett and Maxwell (2004) mention the case of the US food aid system, under which US$1.0 of food actually costs US$2.13 to the budget. They also found that, contrary to widespread opinion, it does not build long-term commercial export markets[36], does not support farm prices in the source country and is not an effective form of support for either farmers or the maritime industry of the source country. Monetized food aid, i.e., which is sold in destination countries to generate resources for development programmes, is seen as particularly costly and ineffective.

However, many analysts believe that "had an investment on agricultural development, equal to the volume of resources used during emergencies, been made during normal years, it would have had a positive impact on the economy that would render food aid unnecessary.

Andrew Charman (2004), attempts to show that had the money spent to import maize in Malawi during 2002-2003 by the different players been invested on maize production, the country would have produced three times as much maize as the volume imported (see Box 5.6). More important, the indirect benefit of additional jobs created in input distribution, agricultural production, marketing, transportation and processing would have gone a long way in addressing poverty and food insecurity.

Charman's conclusion can be challenged on a number of grounds. First, the issue of alternative uses of resources between imports and investment at a time of crisis is only theoretical. When responsible governments are confronted with emergencies, they have no

[35] See also a review of the literature on food aid in the Background Document, in Boussard *et al.*, FAO, 2005.

[36] USAID Administrator Andrew Natsios' speech at the Farm Journal Forum, in Dec. 2003 illustrates this opinion: "Food aid : I hope that farm groups would "lobby" for "the money (USAID) need, because USAID has done a study of how past food aid recipient countries have turned to commercial markets and the results were "astonishing" - with Korea as the prime example". However, Barrett and Maxwell argue that "Careful academic studies also show statistically that food aid fails to promote American commercial agricultural exports, as proponents of PL480 had hoped it might. The observed internal rates of return on this investment are negative. Consequently, outside of a very few niche commodities and processors, food aid generally fails to boost the prices received by American farmers and agribusinesses, and it doesn't expand overseas markets for their products."

choice but to mobilize all available resources at their disposal to avert disaster. The question is whether investing to *prevent* crisis is a palatable alternative to both governments and donors alike. Charman's figures suggest that economically, at least, this investment is worthwhile; but are donors ready to support *preventive programmes*?

Second, it may be the case that these figures overestimate benefits from investing in agriculture, as, in the specific case of Malawi, it is assumed implicitly that land is not a constraint, and that the programmes which are being advocated would have a linear marginal rate of return for inputs irrespective of the scale of operation[37]. Notwithstanding these assumptions, one can draw an important conclusion: that investment in agriculture can indeed pay, and that had similar resources been invested in the past in the development of the sector, it is likely that countries like Malawi would have been able to tap all the opportunities they have and exploit their latent comparative advantage in agriculture.

Box 5.6: The cost and implications of food aid and commercial import in Malawi

During the 2002-2003 food crisis in Malawi, the total cost of importing cereals (food aid and commercial imports), which amounted to 788 539 tonnes, was estimated at MK 15.6 billion. The details are as follows:

Inflow	Estimated Quantity (Mt)	Estimated Value C.I.F. (million MK)
National Food Reserve Agency - Commercial	235 000	4 132
Private Sector Commercial	102 321	1 799
Strategic Grain Reserve	27 000	603
Unrecorded (estimate)	231 000	3 724
Mozambique	208 000	
Zambia	16 000	
Tanzania	7 000	
EMOP (Emergency Operations)	184 318	5 057
Other pipelines	8 900	244
Total	**788 539**	**15 559**

The Starter Pack/Targeted Input Programme experience demonstrated that each MK *invested* in inputs gave a return of 0.16-0.27 kg of maize. If the money spent on commercial imports had been invested in domestic production, then the net production gain would have ranged between 2 489 276 and 4 200 992 tonnes (or 3 to 5 times the inflow observed in 2002-03).

Based on: Charman, A Malawi case study on agricultural development and food security, 2004.

[37] Indeed, in the specific case of Malawi's programmes, input packages under similar programmes have been designed for very small areas per households (like a safety net), hence eluding constraints related to land.

Box 5.7: Main constraints and opportunities of agriculture in SSA and conclusion

Main constraints and opportunities

- Government budget cuts made in the wake of structural adjustment programmes have affected agriculture more than other sectors. The share of agriculture in government budgets declined from around 5 percent in 1990/91 to 3.5 percent in 2001/01 in the countries reviewed. This gravely affected public investment in agriculture and the capacity of public institutions.
- Political unrest and armed conflict have strongly affected agriculture in a number of SSA countries by preventing farmers from producing, displacing populations, destroying infrastructure and littering the countryside with mines.
- Poor governance and weak institutional capacity have, in most countries, resulted in poor policies incapable of addressing the challenges of agriculture and rural development. Brain drain, hasty implementation of inadequately worked out reforms and urban bias are prevalent in most of SSA.
- Expansion of land cultivated is constrained by physical access, insecure land ownership, limited access to animal and mechanical power and reduced labour availability (due to migration, competition with off-farm activities and HIV/AIDS and other communicable diseases).
- Low agricultural productivity results from:
  - recurrent droughts, which increased both in frequency and severity;
  - underutilization of huge available water resources;
  - low application of fertilizer and scant use of improved soil fertility management practices;
  - weak support services (research, extension and credit);
  - degradation of natural resources.
- High post-harvest losses.
- Malfunctioning and inefficient markets (frail private sector, high transport costs, weak information systems, poor regulatory framework).
- Farmers face low and volatile farm gate output and high input prices, resulting both from international price trends and national policies. Most countries lack mechanisms to minimize risks due to price variability, which discourages investment in agriculture.
- Aid flows to agriculture and rural development in SSA have decreased and are concentrated in the better-off countries. Current flows are insignificant compared to needs identified by NEPAD; more resources are allocated by developed countries to food aid than to agriculture and rural development aid, while analysis suggests that investing in agriculture would reduce the need to resort to food aid in the future.
- As a result, capital and productivity per agricultural worker are lower in SSA than in any other region of the world.

Conclusion

Addressing the constraints and exploiting opportunities for agriculture and rural development identified in this chapter will require considerable public support, both in terms of additional resources and policy reform. The challenge is considerable, but, as illustrated by the success stories discussed in the next chapter, it is possible to overcome them. It is clear from the analysis conducted that there are considerable opportunities for expanding land under cultivation, increasing yields (through better management of water and soil resources and use of improved technology). Tapping this potential will depend on the ability of governments to create the right conditions for farmers to take initiative, invest and trust in the functioning of markets that will remunerate fairly their efforts.