

## Long-term challenges to food security and rural livelihoods in Sub-Saharan Africa

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A total of 180 million food-insecure people live in Sub-Saharan Africa, over 21 per cent of the African population. These are among the world's most vulnerable people, poorly equipped to respond to the threat of climate change, demographic stresses, or spikes in global food prices. This briefing examines how improvements in agriculture might help to achieve greater food security and recommends ways to achieve this.

Four women leave a food distribution center carrying sacks of maize meal on their heads. Turkana District has been worst affected in Kenya's most serious drought for 60 years.

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### Key messages

Improvements in agriculture could be a way out of food insecurity for Africa if the right policies are pursued, the necessary investment is prioritized and countries collaborate and share knowledge with each other. Policies are needed that:

- Raise agricultural productivity to meet Sub-Saharan Africa's own food needs, develop specialist niche products and become a competitive player in the global market.
- Spur innovation in response to climate change, population growth and new market opportunities, with increased investment in agricultural research and development, multiplication of new crop and livestock genetics and dissemination of techniques to use soil, water, labor and land more effectively and sustainably.
- Strengthen safety nets, improve health and education, build assets and support livelihoods for small-scale as well as larger-scale producers to participate equally in national and global markets.
- Support people to adapt to the impact of climate change whether they live in rural or urban areas.

Taking strategic decisions now to manage future challenges and make the most of emerging opportunities has become imperative.

This briefing paper is one of the 10-part Global Development Network (GDN) Agriculture Policy Series for its project, 'Supporting Policy Research to Inform Agricultural Policy in Sub-Saharan Africa and South Asia'. It is based on a longer synthesis paper, *Long-term challenges to food security and rural livelihoods in Sub-Saharan Africa*, which draws on extensive published and unpublished research. The full paper can be downloaded at: [www.agripolicyoutreach.org](http://www.agripolicyoutreach.org)

It will be of value to policymakers, experts and civil society working to improve agriculture in Sub-Saharan Africa.

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Experts predict that, under a business-as-usual scenario, by 2050 there will be 42 million malnourished children under five years old in Sub-Saharan Africa, forcing many to rely on food aid. Pictured is a box of high-energy biscuits donated by the World Food Programme (WFP) in Sudan.

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Up until early 2000, the agriculture sector in Sub-Saharan Africa went through policy and budgetary neglect that led to growth stagnation but this has now changed: agricultural GDP in Sub-Saharan Africa as a whole grew by more than 3.5 per cent in 2008, surpassing the population growth rate, and grain production growth rates have been kept above 3 per cent.

Despite these positive trends and the region's agro-diversity and potential for increased food production, Sub-Saharan Africa still faces daunting long-term challenges to food security and rural livelihoods. The region is uncompetitive in global agricultural commodity markets and many countries are net food importers, making them vulnerable to volatile prices. Poor basic infrastructure in many countries cuts off small-scale farmers from markets and opportunities. An estimated 40 per cent of people in Sub-Saharan Africa still live below the poverty line, the majority of them living in remote rural areas. Experts predict that, under a business-as-usual scenario, by 2050 there will be 42 million malnourished children under five years old in Sub-Saharan Africa; if climate change is taken into account, then an additional 10 million children will be malnourished.

Behind these challenges are opportunities. Africa's urban populations and incomes are growing and with that will come greater demand for marketed food. Foreign investment and international trade is growing, and farmers' investments in their own small-scale operations will increase smallholders' capacity to respond to market needs, increase yields and make the most of rising commodity prices, allowing countries to reduce dependence on food imports through import substitution policies. South-South collaboration has the potential to transfer skills, share good practice and expertise (especially in seed multiplication, agronomy and irrigation) and strengthen agricultural research knowledge.

### Background to the research

The long-term challenges to food security and rural livelihoods in Sub-Saharan Africa are examined by presenting a critical review of literature on two distinct but related issues:

- The nature and pattern of investment in Sub-Saharan African agriculture with analysis of the present situation and prospects for improving its performance in future.
- Sources of future stress to food security in the region, dwelling largely on climatic and demographic changes as well as assessing the opportunities and challenges posed by trends in global food prices.

The briefing does not focus on strategies for achieving food security and rural livelihoods in Sub-Saharan Africa but instead emphasizes the crucial need for agricultural development as a basis for achieving broad-based economic growth that will in turn lead to poverty reduction and sustainable food security. The briefing synthesizes the views and recommendations of policymakers, researchers and key market players that were involved in the review exercise.

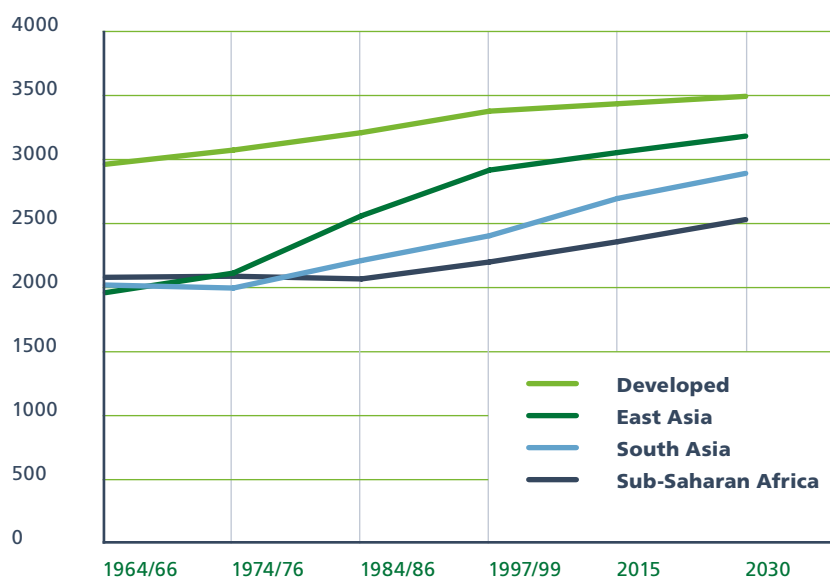


## Making policy in the round

The World Food Summit in 1996, followed by the Millennium Development Goals in 2000, set a principal target of halving the proportion of people in the world suffering from hunger by 2015. In 2011, this goal was reached by three African countries. Getting others to join them is a major challenge for regional leaders and their development partners.

African governments have turned towards the agriculture sector as an engine of poverty reduction and economic growth. Policymaking in this area, however, must be seen in the round. Complementary policies to support development in health, education, infrastructure, new technology, access to markets and empowerment of rural communities are essential, with the necessary support for implementation. With systemic institutional weakness in many Sub-Saharan African countries, ensuring consistent pursuit of high-quality programs is another major challenge.

**Food consumption projections for the year 2030 – kcal per capita per day**



Source: FAO/WHO (2003)

## A bit of background

In Sub-Saharan Africa:

Only 5 per cent of the cropped area is irrigated, compared to 14 per cent in Latin America and 37 per cent in Asia (Ringler et al, 2010); the sector is therefore highly prone to weather-related risks.

The agriculture sector accounts for:

- 20 per cent of the region's GDP
- 15 per cent of exports
- 60 per cent of employment (World Bank, 2009)

The 2003 Maputo Declaration commits signatories to allocate at least 10 per cent of national budgets to agricultural development in order for the sector to grow by at least 6 per cent annually.

## Africa lagging behind the rest of the world

While globally in the last 40 years there has been a steady increase in food consumption in terms of kcal per capita per day of dietary energy, in Sub-Saharan Africa dietary energy consumption stagnated during the long period of policy neglect. Intake of dietary fats also stagnated, and per capita consumption of livestock products and fruit and vegetables remains far below recommended levels.

Past neglect of agriculture has left Sub-Saharan Africa performing poorly in terms of agricultural productivity. The region has fallen behind other world regions in terms of percentage of irrigated arable land, value added per worker, fertilizer use and productivity growth in crops and livestock activity. There has been an overall decrease in average food production per person since 1970 and production is characterized by underuse of improved seed varieties, poor access to credit, high post-harvest losses and low technical efficiency, even among large-scale producers.

The result is a loss of competitiveness and a rise in imports, even for commodities where one would expect Africa to have a comparative advantage.





Zambia grain store: agriculture in Sub-Saharan Africa is growing and continues to receive political attention but the challenges to achieving food security and sustainable rural livelihoods persist.

GLOBAL DEVELOPMENT NETWORK

## Situation changing but challenges persist

The situation is changing, however. Following the signing of the Maputo Declaration in 2003 and the food crisis in 2007–08, there is a renewed commitment to agricultural development that is being boosted by an enabling policy environment, advances in democracy and governance, and a stronger civil society.

Regional integration is opening up markets, and rising per capita incomes augur well for demand, particularly for horticulture and livestock products. There are good prospects for donor funds targeting investments in agriculture. And through South–South cooperation food production and employment stand to gain directly, along with capacity building and transfer of skills to the sector.

Agriculture in Sub-Saharan Africa is growing and continues to receive political attention but the challenges to achieving food security and sustainable rural livelihoods persist. The region is particularly vulnerable to climate change and global market shocks. There are policy concerns about the implications of demographic changes, gender inequality and rural–urban migration for food production, as well as access to food, especially by poor rural households.

## Policy developments since 2000

The African Union’s New Partnership for Africa’s Development (NEPAD) has produced a framework for change called the Comprehensive African Agricultural Development Programme (CAADP), which is a blueprint for investments in the agriculture sector. Its aim – to increase the investment in agriculture in each country to 10 per cent of the budget – had been realized by just over one third (36 per cent) of African countries in 2008.

A complementary Framework for African Agricultural Productivity (FAAP) encourages innovation, a more coordinated funding approach by external donors, and responding to stakeholder rather than donor priorities to ensure better harmonized activities at country, program and project level. Together, the two frameworks have elicited pledges and seed money amounting to USD 60 million in the form of a multi-donor trust fund.

CAADP and FAAP have also provided strategies to revitalize, reform and expand Africa’s research and development capacity, encouraging a shift from an exclusive technology-based approach to innovations that engage public, private and civil society stakeholders. Crucially, they support governments’ designs for agricultural programs that guarantee broad-based, pro-poor growth and an improvement in food security.



48-year-old Danie Nanyako works in his field in Mlaviwa village in Malawi’s Phalombe district preparing his fields for the next rains. As the majority of crops are rain-fed, the region is particularly vulnerable to climate change.

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## Investment and funding

Public expenditure particularly focuses on agricultural research and development, supporting 75 per cent of capacity in 2000.

The private sector has perceived agriculture as an investment opportunity in recent years even though farm production remains dominated by self-employed farm households, limiting sales and marketing activity. It has made the most of natural resource availability, but its contribution to agricultural research is still relatively small, accounting for only 2 per cent of total investment in research.

Donor support to agricultural development has been increasing since around 2001, driven largely by concerns about rising international commodity prices, recognition by Sub-Saharan African governments of the important role of agricultural growth, and a much improved business environment, although the rate of increase has been slow.

Some donor funding emanates from South–South official development assistance, notably from Brazil, China and India. China has committed funding to train African agricultural scientists and establish agricultural technology demonstration centers, while Brazil is pursuing research and technology transfer links. Part of the South–South cooperation involves land acquisitions that continue to generate heated debate. Although there are investment-related merits for such acquisitions, there are concerns about lack of transparency in their contractual arrangements and the impact on land that is communally owned.

## Global warming and climate change

Global temperatures are expected to rise by 2 degrees centigrade from preindustrial levels by 2050. This will have an adverse effect on agricultural production, food prices, health and wellbeing. Yields of rice, wheat and maize, for example, are expected to decline by about 15 per cent, 35 per cent and 9 per cent respectively, on average, by 2050.

With crop yields succumbing to water and heat stress, food prices take on an extra significance. Volatile prices will impose huge financial burdens on the economies of Sub-Saharan Africa, condemning poor farmers to a constant state of underdevelopment. Without alternative livelihood strategies, price volatility leads to income volatility, inadequate access to credit, a shift towards low-risk production technologies and an inability to respond opportunistically.

Climate change will cause cereal consumption to decrease from 117kg/year in 2000 to 89kg/year in 2050. This will not be outweighed by an expected small increase in meat consumption, and with declining calorie availability it is predicted that by 2050 there will be 52 million malnourished children in Sub-Saharan Africa.

Adapting to climate change will be costly: predicted costs in Sub-Saharan Africa as a percentage of GDP are extremely large in comparison to any other global region, mainly because GDP levels are comparatively low. Agriculture sector adaptation costs in the region account for 40 per cent of the total, principally linked to constructing more rural roads. If agricultural productivity could be increased, the region would be less vulnerable and better equipped to meet future climate change challenges.

**Food consumption projections for the year 2030 – kcal per capita per day**

	2000 (million tons)	2050 – No CC (million tons)	2050 – No CC (% change)	CSIRO – CC (% change)	NCAR – CC (% change)
<b>Rice</b>	7.5	18.3	145.6	–14.5	–15.2
<b>Wheat</b>	4.5	11.4	153.3	–33.5	–35.8
<b>Maize</b>	37.1	53.9	45.3	–9.6	–7.1
<b>Millet</b>	13.1	48.1	267.2	–6.9	–7.6
<b>Sorghum</b>	19.0	60.1	216.3	–2.3	–3.0

Source: Nelson et al (2009)

Note: 2050 – No CC (% change) means per cent change between production in 2000 and 2050 with no climate change. CSIRO – CC (% change) and NCAR – CC (% change) indicate the additional change in production due to climate change under the two different models: CSIRO (Commonwealth Scientific and Industrial Research Organisation) and NCAR (National Center for Atmospheric Research).



Women selling grain to people with a small or irregular income, who cannot afford to buy in bulk but purchase small amounts when they need it at a market in Mokko. Many experts believe that food prices will remain high until investment raises productivity on the world's limited farmland.

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### Demographic changes

The changes in Sub-Saharan Africa's demographics (see box) have implications for sustaining food security.

- There will be shrinkage in the agricultural labor force.
- Those left behind will be older, less productive and more risk averse to new technological innovations.
- There will be a rise in female-headed households, often poorer and more vulnerable to external shocks.
- Dependency ratios are likely to rise, leading to increasing costs of education and healthcare at a time when agricultural productivity is stagnating.

Research by Jayne et al (2002) indicates that the ratio of land under crop cultivation to agricultural population is declining in Africa. Masters (2010) shows how the rate of decline will slow but not stop for several decades, accumulating demand for increased yields and sustainable land management practices. Some households will intensify production by using fertilizers, conservation agriculture and integrated crop–livestock operations, but the payoff to additional inputs depends on the availability of appropriate seed varieties as well as access to markets. Those who cannot achieve sustainable intensification will see their incomes decrease as labor productivity falls.

As women assume major responsibilities for agricultural production following male migration to urban areas, they expose themselves to the impact of climate change and unstable food prices. Gender-nuanced policies, support and coping strategies need to be developed for times of crisis.

Likewise, policies to cope with a mass exodus of young people from rural areas are required. Many young people feel that opportunities in agriculture are blocked by the controlling hands of the older generation, declining land area, worsening climate, unreliable markets and lack of investment. This outmigration from the sector will lead to impoverishment unless it is matched by rapid innovation and market development, not only in agriculture but also in non-farm activity.

### Global food price trends

The Food and Agricultural Organization (FAO) food price index reached an all-time high in February 2011, and many experts believe that prices will remain high until and unless sharply increased public investment raises productivity on the world's limited farmland. Energy and fertilizer prices are also expected to increase and remain high.

Urban dwellers and poor rural households are hardest hit by price rises, especially in net food-importing countries without alternative coping strategies. After the 2007–08 price spikes the FAO estimated that the number of undernourished people increased by 8 per cent in Africa.

Price increases expose many vulnerable people to hunger and food insecurity, but in the right context they can spur public investment and open new opportunities for African farmers, providing a chance to reconquer markets nationally and regionally. For this to become a reality they will need supportive trade policies, access to markets and investment in infrastructure.

### Sub-Saharan Africa population changes

<b>2005</b>	770 million people
<b>2050</b>	1.5–2 billion people (projected)

Population growth rates for urban centers in Sub-Saharan Africa will be three times the growth rate for rural areas in the next 20 to 25 years.

The absolute number of rural people is expected to grow, with the upward trend continuing well past 2030.



### ■ Taking advantage of agro-climatic diversity

Sub-Saharan Africa has a wide diversity of agro-climatic conditions which make it possible to grow a variety of products for both domestic and foreign markets. It needs foreign direct investment to develop this production, balancing foreign purchase of land with transparent practice to include smallholders and civil society in the process.

### ■ Increasing use of natural resources

Current projections from the International Food Policy Research Institute (IFPRI) show that dependence on food imports will increase. Sub-Saharan Africa should be moving towards being a net exporter of commodities such as rice, maize, soybeans, sugar and palm oil, to avoid becoming overdependent on imports.

### ■ Adding value and seeking new markets

Sub-Saharan Africa needs the right regulatory and legal regime, supply of specialized information and knowledge, good infrastructure and access to finance to enable producers in the region to invest in non-traditional, niche, fresh and processed products for export.

### ■ Building human resource capacity

Agriculture research and development is lacking specialists. Governments and donor organizations must increase their investment in agricultural higher education to provide more postgraduate places, curriculum development and scholarships.

### ■ Promoting smallholder participation in agricultural markets

Policies should tackle poor food distribution networks, reliance on rain-fed production, weak information systems and scarce access to credit. The private sector can be encouraged to work with both large- and small-scale producers – the latter organized into larger associations – to take advantage of new markets, better information, technology and finance.

### ■ Using index insurance as a response to climate change

Index insurance is a way of sharing a given risk among the insured population. It can help farmers to get access to loans and encourage them to invest in increasing productivity because it removes the worry about being able to repay a loan in the event of an extreme weather shock. Government policies can support pilot schemes, product promotion and marketing, contract design and sales skills building, and legal and regulatory regimes to facilitate scale-up.

### ■ Managing the impact of food price instability

Targeted assistance, safety nets and entitlement programs, such as conditional cash transfers, vouchers for food and farm inputs, and employment guarantees, can protect the assets and human capital of the most vulnerable. These programs respond quickly to local conditions, ensuring that past investments are not destroyed during crises.

Longer-term strategies must focus on increased productivity achieved through larger investment in research, adapting crops and livestock to changing conditions, extension work and infrastructure, and greater use of fertilizer and irrigation towards sustainable intensification, in order to meet the needs of Africa's rapidly growing population while enhancing the continent's biodiversity and natural resources.

### ■ Improving trade policies

The Doha round of trade talks must be completed to create a well-regulated trading system, and at the regional level, intra-regional barriers to trade must be removed. Regional bodies can contribute to sharing market information and intelligence. A buffer against food price spikes could be created by establishing a virtual food reserve to keep prices closer to a long-term average price.



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The full paper *Long term challenges to food security and rural livelihoods in Sub-Saharan Africa* is available for download at [www.agripolicyoutreach.org](http://www.agripolicyoutreach.org)

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