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PERSPECTIVES

Political analysis and commentary from Africa



FOOD SECURITY IN AFRICA

HEINRICH
BÖLL
STIFTUNG

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Editorial

The Food and Agriculture Organisation of the United Nations (FAO) estimates that globally, 925 million people were undernourished in 2010. In sub-Saharan Africa, the region with the highest demographic growth in the world, 239 million people continue to suffer from severe hunger, representing a staggering 30 percent of its total population. Given that poverty and vulnerability to hunger are strongly interrelated, food insecurity most dramatically affects the poor in *both* rural areas and urban centers. While the proportion of undernourished people varies widely at the country level, many of the current and predicted challenges to ensuring food availability, food access and food adequacy for all are similar across the continent.

One of the biggest challenges predicted to affect food security in Africa is climate change. Due to the fact that 95 percent of Africa's agriculture is rainfed, the already fragile agricultural sector is extremely vulnerable to climate change. Higher temperatures and an increased frequency of extreme weather events, such as droughts and floods, eventually lead to a decline in agricultural output. The ability of African states to reduce vulnerability and strengthen the resilience of their agricultural sectors appears to be hampered. Major factors contributing to this are limited human and institutional capacity, and a lack of appropriate policy coordination and coherence.

At the same time, there is an intensifying worldwide scramble for Africa's fertile land. National governments and private companies from industrialised and emerging economies buy or lease vast tracts of land across the continent to grow crops for food and fuel in order to meet growing demands at home. In some cases, land is obtained under non-transparent and fraudulent circumstances. Proponents of these 'land grabs' insist that the millions of dollars of foreign investment involved will develop local infrastructure, facilitate transfer of skills and technology, create jobs, alleviate poverty and help to ensure food security in host countries. But the reality, critics claim, more often reflects destroyed livelihoods of small farmers, forced relocations of

rural communities, poor working conditions and environmental degradation.

If left unchecked, uncertain climatic conditions, coupled with population growth, political mismanagement and agricultural commodification, are likely to cause extremely volatile food prices in the coming decades. The global food crisis of 2007/8, during which prices of many staple foods doubled, led to riots in more than thirty countries and an additional one hundred million people starving worldwide. However, this might have been a mere warning sign of what is yet to come.

By looking at case studies from Ethiopia, Kenya, Nigeria and South Africa, the authors in this issue of *Perspectives* examine some of these complex problems and suggest appropriate measures for ensuring food security, fighting hunger and promoting sustainable approaches to natural resources management. While it has to be acknowledged that there are many possible answers to this multidimensional crisis, the articles gathered here clearly demonstrate that there is no silver bullet. Instead, tailor-made solutions that are inclusive, responsive to the needs of the poor, and mindful of existing knowledge and local realities are more likely to bring about success in the fight against hunger in Africa.

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Land Grabbing in Africa and the New Politics of Food

Introduction

'Africa is for sale' is how some characterise it; there is a 'land grab' underway. Others are more cautious, speaking of 'large-scale land acquisitions', while the World Bank notes euphemistically the 'rising global interest in farmland'. Whatever the prevailing terminology and ideologies, there is now ample evidence that large swathes of African farmland are being allocated to investors, usually on long-term leases, at a rate not seen for decades – indeed, not since the colonial period. The fact that much of this land is being acquired to provide for the future food and fuel needs of foreign nations has, not surprisingly, led to allegations that a neo-colonial push by more wealthy and powerful nations is underway to annex the continent's key natural resources.

While no solid dataset tells us precisely the scale and distribution of the phenomenon, all the major studies conducted so far confirm that Africa is the global centre of land grabbing. The World Bank's study released in September 2010 identified 45 million hectares under negotiation for allocation during 2009 alone, of which 70 percent (about 32 million hectares) was in Africa.¹ A new study by the International Land Coalition suggests that the true figure could be much higher, at around 80 million hectares, 64 percent (about 50 million hectares) of these in Africa.²

Why? What Are the Drivers?

This dramatic rise in land acquisitions across Africa and elsewhere originates from three main drivers, which are reflected in the term 'the triple-F crisis': food, fuel and finance.

First is the *food crisis*. The food price spikes of 2007/8 showed just how vulnerable food-importing nations are to fluctuations in global commodity markets. These led many, including the Gulf States and several east Asian countries, to re-evaluate their strategies and secure land and water elsewhere, essentially turning to 'offshore' food

production to supply their growing populations. This food crisis plunged an extra one hundred million people globally into hunger, from which most have not recovered. This situation has set back by many years development efforts towards Millennium Development Goal 1: to eradicate extreme poverty and hunger.

Second is the *fuel crisis*. Rising and fluctuating oil prices in the period 2007–09, and the realisation that we might have hit peak oil production, created powerful incentives for companies to acquire land for the production of 'agrofuel' or biofuel crops. Foremost among these feedstocks are jatropha, palm oil, maize and soya for biodiesel, and

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sugarcane for bioethanol. Compounding the rush towards biofuels are policies like the European Union's target of 10 percent renewable content in its fuel stocks by 2020, which by itself constitutes very substantial demand for renewables. Globally, the World Bank found that 21 percent of land deals in 2009 were for biofuel production, while the International Land Coalition's more updated figures put this higher, at 44 percent. There is also substantial regional variation, with Southern Africa being called 'the new Middle East of biofuels'.³

Third is the *financial crisis*. The meltdown in international financial markets in late 2009 and the subsequent recession led investors to consider those markets volatile and risky. Many sought



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to invest in the more tangible asset of farmland, with the promise that rising demand for food and fuel would make this a secure investment in an increasingly unpredictable global system. While some may have long-term plans for these investments, others are clearly speculators, bargaining on short-term gains. Private equity groups have established 'farmland funds', buying up portfolios of land in numerous countries and promising their clients returns of 30 percent per annum over a five-year period. This figure is entirely unrelated to actual farm production, but is based on cheaply acquired land and a gamble on projected growth in demand for farmland, which will create secondary markets for further transfers of these leases to other buyers.

Some analysts are now pointing to a fourth driver, the growth of *carbon markets*. Reducing Emissions from Deforestation and Degradation (REDD) is an instrument that emphasises the strategic importance of controlling forested land – and most of Africa's savannah can be counted as natural forest for these purposes. So as well as acquiring land to cultivate, investors are looking to acquire land to *not* cultivate, in order to earn carbon credits.

Why Africa?

Why Africa is at the centre of this new trend is disputed. One reason put forward is that Africa's land is empty and available. Much of Africa's land is under-utilised and ripe for commercialisation, according to the World Bank's 2009 report entitled *Awakening Africa's Sleeping Giant: Prospects for Commercial Agriculture in the Guinea Savannah Zone and Beyond*. It argues that this region of the Guinea Savannah, stretching across most of inland west Africa across to the horn, through much of central Africa and down the east coast to Mozambique, constitutes 'one of the world's largest underused land reserves'.⁴ The report suggests that it will be key to meeting growing food demand as the world's population rises to nine billion by 2050. Because of low population densities and limited mobility, much of this commercialisation will need to be based on large-scale commercial agriculture, the bank argues.

The Land Is Cheap – or Even Free

An alternative explanation for why Africa is such an attractive destination for investors – mooted by both proponents and critics of land deals – is that

the land is so cheap; sometimes, even free. Private equity groups explicitly sell their African farmland investment funds to prospective clients by pointing out that land on the continent is 'undervalued' and therefore an excellent investment.

Indeed, what is a 'market' price for customary land cleared of its inhabitants and leased by a government? Many deals involve renewable leases for twenty-five, fifty or even ninety-nine years, in return for small payments made to national, provincial or local government. Sometimes once-off compensation for local people is included – with, of course, the promise of jobs and construction of new infrastructure. Yet after the land is acquired, enforcement of promises made remains a challenge, especially as investors' choices about how and how much to invest are framed by factors far outside the control of host governments.

But the Land Is Not Empty

Mounting evidence shows that much of the land being allocated on long-term leases or concessions to investors is already occupied and used – mostly by Africa's eighty million small-scale farmers, who supply most of its food needs and produce 30 percent of its GDP. While powerful narratives rationalising such deals emphasise that land being targeted is 'idle land' or 'wasteland', case studies suggest that these terms often reflect an assessment of the *productivity*, rather than the *existence*, of current land uses.

The International Institute for Environment and Development, for instance, found that in Ethiopia, all land allocations recorded at the national investment promotion agency are classified as involving 'wastelands', with no pre-existing users. But in a country with a population of about seventy-five million, the vast majority of whom live in rural areas,⁵ this formal classification is open to question. Indeed, shifting cultivation and dry-season grazing have been widespread in these regions, but have gone unacknowledged by officials in charge of leasing out land. Now, a growing body of more detailed case studies shows the extent to which small-scale farmers have been displaced; pastoralists have lost their grazing land; and rural people have lost access to crucial common property resources. In sum, even land that is not farmed is often used by and important to the survival of local communities. Thus, discourses about empty land are deeply and dangerously misleading.

The World Bank hoped that commercialisation would focus on more marginal regions, bringing un- or under-utilised land into production and increasing overall output. However, investors are favouring areas with higher rainfall and proximity to urban centres and transport infrastructure – in other words, those areas already most prized by existing small-scale farmers.

Who Is Doing the Grabbing?

While much attention has been given to ‘foreign companies’ acquiring farmland, in fact a range of actors has proliferated, including multinational companies, sovereign wealth funds (notably from Europe and the Gulf States), private equity funds and other financial institutions.

This recent wave of ‘land grabbing’ has witnessed not only European and North American actors seeking out farmland deals, but also the rise of ‘South-South’ deals, with the BRICS countries (Brazil, Russia, India, China and South Africa) becoming more significant. At the recent Conference on Global Land Grabbing hosted by the Land Deal Politics Initiative (LDPI) at the University

Land grabbing has prompted many to criticise the high levels of corruption involved in securing large-scale land deals, but the concerns extend far beyond this.

of Sussex, UK, several detailed case studies showed how regional economic powers are emerging as more significant actors: Brazil in Latin America, South Africa in Africa, China (as well as India and South Korea) in Asia, and so on. It is to be expected that, with the rise of regional powers, the old North-South dynamic should shift, bringing about new opportunities but also threats and dynamics that need to be understood and engaged with.

Further, while the world’s attention has been drawn to the entry of ‘foreign’ actors, emerging evidence shows that many of the land deals have been secured by domestic capital. This operates in the form of private companies, sometimes in partnership with government investment

corporations and other parastatals, and sometimes also in partnership with foreign companies and financiers. And even if the land is allocated to private companies, it is the states themselves (usually national governments) that are doing the ‘grabbing’ of land from citizens with weak or unregistered rights.

Most important, though, is not the identity of the investors, but rather the nature of the deals, the types of land use changes they bring about, and how these contribute to fundamental shifts in the structure of these largely agrarian economies. Who wins, who loses, and what does this mean for the future of rural economies and rural poverty in Africa?

A Minefield of Controversies

Land grabbing has prompted many to criticise the high levels of corruption involved in securing large-scale land deals, but the concerns extend far beyond this. Changes in land use may alter the amount of food being produced for local markets, and so might reduce food availability. Threats to biodiversity and loss of environmental services constitute another concern. Large commercial deals typically involve the transition from multiple land uses, intercropping and low-level use of forest products to forest clearance and monocropping.

But there are several other key debates about land deals, four of which are highlighted here: land rights, gender, water and bilateral investment treaties.

Land rights are a precondition for any legitimate land deal. Yet in many cases, the land rights of existing users have been violated. This tendency has been widespread, not only in Africa, where most people hold land under forms of customary tenure, but also in Asia and Latin America. Land deals have prompted loss – and not only of cultivated land, where food production for consumption and for local markets is displaced. Even where land is not farmed, researchers and non-governmental organisations have pointed to the devastating impacts of land deals on pastoralist communities in regions of west Africa, and also in the horn (notably Kenya, Ethiopia and Sudan), when their customary grazing lands have been privatised and fenced.

Despite talk of ‘land grabbing by foreigners’, those doing the grabbing are in most instances national governments – though also sometimes state or local authorities, traditional leaders and other

local power brokers. For this reason, some kind of registration of community land rights might be advantageous to help guard against governments displacing landholders in favour of investors – though problematic experiences with titling customary lands in Africa suggests that this is not a simple solution, either.

Most disturbing is the finding of several studies that the new investors are favouring host countries where governance is weak, politicians corruptible, and land rights of existing users weak in law and practice. Rather than seeking secure political environments (which some may favour), many are opting for precisely those destinations where local people can be easily removed from their land. This is one of the key findings of the World Bank report: surveying fourteen countries across three continents, it found a strong *negative* correlation between good governance on land rights and investor interest. In short, for many (though obviously not all) investors, it's easier and cheaper to rely on local people being displaced than to engage in negotiations and partnerships with them.

Gender is one of the most important criteria for understanding the true, and varied, impacts of land deals. As a recent study from the International Food Policy Research Institute (IFPRI) shows, women are most likely to carry the brunt of land loss, given their primary role in providing food for household subsistence. Men, by contrast, are most likely to benefit from access to employment in plantations or processing plants.⁶ Where people are displaced, the costs of rebuilding livelihoods and ensuring social reproduction fall disproportionately on women, and gender relations are likely to become more unequal as a result. Rather than assuming then that all in rural communities are equal and will benefit or suffer equally, gender is one among other dimensions of social differentiation that must be understood, in context, in order to inform appropriate policy alternatives.

Water is a central but often ignored component of land deals. The right of investors to access the water required to cultivate acquired land is embedded within land leases, but is seldom paid for. Most investors favour land with good access to water and the potential for irrigation: contrary to the World Bank's expectations of commercialisation in the Guinea Savannah zone, little of the investment is for rainfed cropping. Given that much of the continent is projected to become more water-scarce

in the future, the impacts of land deals on other water users, now and into the future, are critical areas for investigation. The presence of large, corporate water users will likely spark conflicts between competing uses and users – as has already been seen in the volatile regions around the shrinking Lake Chad.⁷

Bilateral investment treaties are fast becoming the most significant determinants of the relative powers of investors vis-à-vis national governments. The International Institute for Sustainable Development (IISD), based in Geneva, has found

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that the terms of the land deals, and the legal frameworks that govern them, impose restrictions on important areas of policy such as land, food, agriculture and trade.⁸ Put simply, African governments are making deals that will tie their hands in terms of making needed policy changes for years, even decades, to come.

Experience with international arbitration of disputes between investors and national governments shows that investors' rights to export their produce (even in times of food shortage) and to use water (even in the face of rising water scarcity) typically trump the rights of governments to protect their citizens' basic needs. Most government-to-investor contracts do not stipulate that investors sell to domestic markets, and government efforts at export restrictions in times of acute food shortages would likely be illegal under international investment and trade law.

All of the above conjures a worrying spectre, fuelling outrage over the actions of investors, as well as of national governments and local elites. What we are witnessing may well turn out to be a non-reversible corporatisation of African agriculture that will displace some of the poorest and most vulnerable citizens, undermining local food production and food security in favour of capital-

intensive and labour-displacing production systems of food and other goods, mostly for foreign markets.

To the extent this is happening, it is the antithesis of land reform, in that it concentrates control in fewer hands; and of agrarian reform, in that it tilts the scales in favour of those who control input and output markets, and undermines self-sufficiency. It is ironic indeed that these changes are underway at precisely the time that the African Union, among others, has embraced a vision of smallholder-led agricultural commercialisation and a 'green revolution in Africa'. Yet this period – characterised by the conjuncture of global market failures in food, fuel and financial markets and weak governance over African land rights – could well see the patterns of accumulation becoming narrower and food security being undermined in Africa.

Policy Responses

At a global multilateral level, three frameworks have been proposed. The UN's Food and Agricultural Organization (FAO) is spearheading a multi-agency initiative to establish a set of *Voluntary Guidelines* for Responsible Governance of Land and other Natural Resource Rights ('voluntary guidelines'). The first draft, published in April 2010, was the output of consultation with governments and civil society organisations over several years in each continent and within regions. These guidelines adopted a human rights-based approach, referencing existing international human rights law, and are premised on securing existing users' rights.

In contrast, the World Bank has, with partners, proposed a set of *Seven Responsible Agricultural Investment Principles*, representing a code of conduct for investors and their financial backers ('RAI principles'). Building on the corporate social responsibility models of the roundtables for soy and palm oil, this set of principles emphasises community consultation. But it is a proposal by technocrats within the bank and other institutions. No civil society groups have been involved in developing it, none of it would be enforceable, and it's unclear which institution could or would be mandated to monitor it. At present, it is under discussion by the Committee on World Food Security as a possible adjunct to the voluntary guidelines.

In response to this debate, the UN Special Rapporteur on the Right to Food published *Ten Minimum Principles for Land-based Investments*.

These include procedural requirements such as informed participation of local communities, as well as substantive norms such as benefit-sharing and ensuring that states' human rights obligations take precedence over land deals. The rapporteur argues that it is wrong and misleading to contrast

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the efficiency of large-scale corporate agriculture with that of the existing smallholder sector. Given decades of neglect of smallholder farming, first by newly independent governments and then by states undergoing donor-imposed structural adjustment programmes, the existing smallholder sector in no way reflects its potential for broad-based and poverty-reducing growth.⁹ That people survive in this way shows their lack of feasible alternatives, which is why their displacement in favour of new production regimes is so unconscionable.

Within *Africa*, several overlapping processes are underway. The African Union, having adopted the AU Land Policy Guidelines in 2009, is working with the UN Economic Commission for Africa and others to operationalise these principles at regional levels and in member states. These bodies urge that land laws and policies be tightened up to protect land users.

The Pan-African Parliament is convening a series of meetings through the regional economic commissions (RECs) in southern, east, central and west Africa, to brief parliamentarians from these regions about land grabbing and to consider a legislative and policy response.

Several civil society organisations – Action Aid, Oxfam, the International Land Coalition – are working with local farmers' associations to generate responses and alternative proposals for regulation of land deals, and for pro-smallholder agricultural policy that calls for investment in existing farmers, rather than in the land. Some are building on the Dakar Appeal Against Land Grabbing, adopted at the World Social Forum in Senegal in February 2011.

In *Europe*, too, campaigns are underway by the Food First International Action Network (FIAN), Transnational Institute (TNI) and partners, urging European citizens to 'follow their money' and ask critical questions of European companies and banks, to find out what land acquisitions in the developing world are being supported through their investments and through their consumption patterns, and what the true costs of these are.

Fundamentally, the debates about land grabbing – as diverse as they are – gravitate around two basic positions. One is that the challenge is to ensure good governance and establish robust institutions, so that deals are concluded responsibly and investors are held to account. In other words, large-scale land deals can be reformed to produce win-win outcomes. This is the view advanced by the World Bank and US Agency for International Development, among others.

A competing view is that 'good governance' is not enough. As the UN Special Rapporteur, Olivier de Schutter, has argued, this view – which underpins the RAI proposals – is based on the idea of 'destroying the global peasantry responsibly'. He proposes that what is needed is not merely regulation to curb the corrupt excesses of land grabbing, but a substantive alternative that

provides a new direction for agrarian change; opposes corporate control of food production and distribution; and promote types of agriculture that are inclusive, pro-poor, smallholder-based, poverty-reducing and hunger-eliminating.

Conclusion

Africa, a continent plagued by chronic food insecurity, is now considered to be the future breadbasket of the world, and is expected to help meet its rising food needs. In the process of cashing in on the opportunities offered by cheap land and water, large-scale investors are displacing land uses and land users in ways that could aggravate the already severe challenges of rural poverty and hunger.

The rise of 'land grabbing' or 'responsible agricultural investment' in Africa is undoubtedly one of the great challenges of our time for development in the continent. The deals being made now are remaking the map of food production and food distribution, in Africa and globally. What happens over the next few years – acceleration or reversal, regulation or laissez-faire, better governance or substantive changes in agricultural policy – will determine to a great extent the future of poverty and hunger in Africa.

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Comment

Rising Food Prices Require Political Response

The world finds itself back where it was in mid-2008 when food prices skyrocketed causing untold harm to the vulnerable. In the recent months there has been a massive increase in prices for most essential food commodities.

Food and being able to eat properly is going to be the single biggest political issue in the next decade. None other than economist, Paul Krugman, noted this in an op-ed in the New York Times. His tone was one of alarm and grave concern.

Interestingly, Krugman pointed to global warming and climate change as the main causes disrupting food production.

However, climate variability is just one factor that acts on the system as a whole. It increases insecurity, but in the end, food security is an issue of political economy. And, the more one multiplies the unpredictable variables that determine food costs, the more volatile the food economy behaves.

That's not good news for the poor.

Income and food are inter-related. When people are unemployed and dependent on irregular sources of income, food inflation hurts the most. And, when ordinary people hurt and have no recourse to escape the ravages of food inflation, they will take to the streets.

Indeed commentators have suggested that the true cause of the protests in Tunisia and Egypt spilling over in the streets and the rest of the Middle-East stems from a systemic crisis that is now the inheritance of the political economy related to food.

In South Africa, what is often labelled, 'service delivery protests', are also reflective of a growing underlying problem that goes beyond whether councillors are doing their jobs or not. The costs of things are going up and there aren't sufficient jobs going around either.

And, even if people do have jobs, their income levels never quite keep up with rising costs. Increasingly, access to food is becoming highly income dependent. And, as South Africa's

population becomes ever more urbanized, dependence on the 'food system' as well as dependence on having an income will grow.

Thus, other than growing food oneself, one can only access what is in the food system through cash.

However, income in itself doesn't guarantee that one eats properly either. The consequence of having no income or low-income growth is that the poor either starve and are under-nourished or just fill themselves with things that lead to long-term poor health.

The general measure of inflation is not a sufficient indicator of how food price inflation specifically affects the poor. As general inflation indicators are measured in terms of a broad basket of goods, they tend to be biased in their estimates in favour of regular income earners.

However, for the poor, food, energy and transport are the biggest cost items and any shift in food prices that is not gradual but depicts rapid and steep price hikes or lows (often in an unpredictable manner) is more disruptive for household economics.

If you live on US\$2 or less per day you can imagine the impact. A 2008 estimate put the number of South African living on less than US\$2 per day at 34 percent.

In general, in the last two years food price increases have gone up between 20-100 percent. In 2011, food prices are expected to rise an average 20 percent globally. South African food inflation could hover anywhere between 5-10 percent by the end of the year.

Four things tend to affect food prices: the relative strength or weakness of a particular country's currency, energy prices, the weather, which affects supply and demand due to disruption of production; and the political economy of the food production chain – in other words, who has control over different aspects of the production chain.

But there is also something more unsettling within the current economic system that adds to this



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unpredictability and growing concerns for national governments: decisions that are made very far off in London and on Wall Street - seemingly unrelated – in the purchase of commodities such as energy, key farming ingredients and even crops themselves, have an impact on food prices.

The more commodified the food trade is, the more scope there is for speculators and producers to milk margins. Consumers and farmers have less and less control over how rewards are apportioned within the food production system.

For example, in America a farmer only gets 19 percent of every dollar that is spent by a US consumer. The rest goes to other parts of the value chain. And, the value chain is increasingly subject to market concentration. A handful of agribusiness and food retailers control the food market. Commodity traders, millers or food processors and retailers are the biggest winners.

The vicious cycle can be prevented if governments act early and don't totally rely on the markets to solve the problem.

If national governments themselves have no control over these forces and processes, you can bet those who have voted them into power have even less influence and ability to control the behaviour of transnational corporations and actors.

The food system is caught up between the dynamics of the real economy and the unpredictability of the financial economy.

The system is so volatile that any radical shift in one predictable aspect only increases the volatility of the entire system towards more unpredictability. So, when speculators try to get their pound of flesh combined with the weather misbehaving or oil prices going up, the problem is only compounded.

The implications for the poor are dire. Their ability to save as well as their capacity to empower themselves by adapting their livelihood strategies can be impaired. They never really get out of the poverty trap. The dependency on the state grows. The ability of the state to be provider also diminishes over time. The virtuous cycle ends and

so begins the vicious one, which we will all reap.

However, national governments can play a role to avert food insecurity and general instability associated with rising food costs. They are not entirely powerless.

They can act in concert with other governments to find ways to limit the impacts of speculation that is purely designed for rent seeking. But, this is better done at a global level than at the national level.

These are tough to achieve but increasing global food crises are more likely going to force governments to act more forcefully in the market than not.

These measures could be applied for strategic crops, like Asia does by breaking global market monopolies on supply for rice exports and inputs such as potash (used in fertilizers). South Korea, specifically, is stockpiling inventories of wheat and maize.

Nationally, the government can run programmes that support poor households in urban and rural areas to grow some food even though all needs won't be met.

The South African government can also intervene in the market through the Competitions Commission by preventing food monopolies, punishing price fixing for essential foods and as it recently did, block a merger of seed companies that would have given the merged companies market advantage in the seed industry.

In December, the Competitions Commission passed a ruling that prevented the commercial grain producers' official representative body, Grain SA, from creating an export pool for surplus maize as it was viewed that such pooling would increase the likelihood of food insecurity and lead to higher prices for domestic maize.

Governments can also find ways to delink the strong relation between food costs and the cost of oil. They should support farmers to access alternative fuels as well as lower crop and food production costs through better planning.

The vicious cycle can be prevented if governments act early and don't totally rely on the markets to solve the problem.

This article was first published by the South African Civil Society Information Service (www.sacsis.org.za).

Interview

Feeding Southern Africa's Cities

Dr. Battersby took time out to speak to the Heinrich Böll Foundation (HBF).

HBF: *Rural food security has been fairly well studied, but urban food security has not. Why is that?*

JB: There's a longstanding anti-urban bias in research that assumes poverty is predominantly a rural problem. And given that food security and poverty are strongly linked, food security is also considered a rural problem. But sub-Saharan Africa is the fastest urbanising area in the world, and South Africa is the most urbanised country in the region. So the face of poverty is increasingly urban.

One estimate has it that five-sixths of the new global poor will be urban-based. So there's a transition towards poverty in urban areas, and food security study is catching up with that.

Also, people tend to think of food security as predominantly a problem about *availability* of food. Viewed in those terms, it becomes a rural, agricultural issue, so we don't recognise what drives food security in cities. There hasn't yet been a time when there wasn't enough food, but there are nevertheless many people struggling to access that food.

Cities tend to downplay or not recognise food security as a problem. They'll tend to prioritise housing or water, all those visible service delivery issues. Food, because it happens at the household scale, is left off the agenda. It's not a visible struggle. It's not something that's easy to identify and fix.

HBF: *What are the implications of overlooking urban food security issues?*

JB: It has health and development implications. Food security isn't simply about the food itself, but also about the well-being of the city. Think about this in terms of the principles of sustainability within the local economy: (how food security impacts

on) human health; and think about the number of people making their living from the informal food system, such as informal food trading and catering.

If you track how many people in cities are employed in one way or the other in food production, distribution and procurement, you see it's also much broader than development or health. It's an issue of the economy and the environment, and has profound cultural importance to a city.

One estimate has it that five-sixths of the new global poor will be urban-based. So there's a transition towards poverty in urban areas, and food security study is catching up with that.

HBF: *Food security has been described as availability, access to and utilisation of food.*

JB: Availability of food is a question of there being enough of the right kind of food produced in the right areas. It's a question of sufficiency, regionally and nationally.

In terms of access, this refers to the means by which people access that food – if they grow it themselves, or have money to buy it, or get it from neighbours. What are the natural resources? Or what alternative means are there to access food? Are people drawing on social networks? In our research, we've found a lot of households depend on informal social networks to access food, for instance by borrowing food from neighbours.

In times of chronic food insecurity, there's often plenty of food around. But certain social and political processes determine how people get access to that food.



Jane Battersby

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I'm looking at food not just in terms of individual household access, but also in terms of whether the city is designed in such a way that hinders or facilitates food access. So where are the markets? How are households on limited budgets able to access the food that is there? For instance, a poor family may have the financial resources to buy food, but if they have to travel a great distance on public transport, how does that affect their access?

Utilisation of food can be understood in terms of the cultural choices people make around food. There's also whether a person's body is healthy enough to absorb the nutrients that are available in food. Those are key elements.

But the other things to consider are storage capacity and cooking facilities. In our research we've found that if you take two households of equal income, and one's in a shack and one's in a formal house, those in a formal house are more likely to be food secure.

This might be because there's better access to formal markets, so they probably are able to access cheaper food. But there's also the matter of storage capacity. If you don't have the capacity to store much food, you're not going to be able to buy in bulk. If you don't have a reliable, cheap means of cooking the food, you're going to buy different types of food – possibly highly processed foods, which might be more expensive.

HBF: *When one talks about urban food security, people think in terms of urban agriculture and food gardens. But it's more complex than that.*

JB: This is critical. People still understand food security as being a problem of availability. Viewed in those terms, the solution to food insecurity is simply to grow more food. But it takes a bigger perspective to understand what drives urban food security.

In Africa, people tend to view poverty as being predominantly rural. Even the poor living in urban areas are seen as having a rural background. The assumption is that they understand agriculture and can just do it themselves.

Short-term thinking sees solutions such as implementing community gardens. And it's a lovely political image, for a government to deliver spades and seeds and fertiliser. But there are much bigger issues that we have to grapple with. Solutions require long-term investment and multi-sectoral thinking. Different departments in government have to speak to each other, and connect with NGOs.

An example is a programme run in Belo

Horizonte, Brazil, called 'the popular restaurant'. These are state-organised canteens near public transport routes, which sell highly subsidised but wholesome food for less than a dollar per meal. They use food that's grown on the city's periphery by small-scale farmers. This involves agricultural development, market development, and planning to locate the restaurants. That requires pulling in all those different departments.

People still understand food security as being a problem of availability. But it takes a bigger perspective to understand what drives urban food security.

A simple thing like a community garden in a school here in South Africa requires integration. Which department owns the land? And which department takes responsibility for the cost of watering and fertiliser – for instance, the Education Department? What about the cost of security? Or should the Department of Economic Development be involved? What about the local municipality?

HBF: *You once said that hunger in cities is often invisible. What do you mean by that?*

JB: Well, you might see a man walking down the street, he's well-dressed, looks affluent, but he's actually hungry. There are two things happening here. There's hunger and there's malnutrition. It's feasible that a large portion of the population is chronically malnourished. And it isn't evident to the eye. People can look healthy and live relatively functional lives while still being malnourished.

During our research, our field workers went into people's houses and asked how often they'd reduced their meal size, or how often they went without any food at all in a day. The numbers were much higher than expected. In the poor communities we've surveyed in Cape Town, for instance, 80 percent of households were either moderately or severely food insecure.

This isn't something people speak about, probably because there's an element of shame in not being able to feed your family. If you're without a house or running water, that's a service delivery

problem with the state. But if you're without food, whose problem is it? All these households have different coping strategies, but no one's really speaking about it.

HBF: *In this context, what is the role of food gardens for the urban poor? And do people have the capacity to grow their own food gardens?*

JB: Our research in Cape Town found that only 5 percent of people were doing any kind of urban agriculture. It was a bit higher in some other cities in southern Africa, like Blantyre in Malawi. But here there doesn't seem to be that much take-up. The reason, we think, has to do with land. If the land you get to farm is not directly adjacent to your house, it undermines the sustainability of the garden in terms of maintaining and protecting it.

There's also the perception that growing food is something that only rural people do. If you're a recent migrant to the city, and someone tells you to garden, there's going to be resistance.

People who are doing urban agriculture are the older generation. There's a strong correlation between households that are gardening, and households that receive old age pensions. This is probably because people need financial stability, such as a grant, to be able to invest in seeds and fertiliser.

There's also the perception that growing food is something that only rural people do. If you're a recent migrant to the city, and someone tells you to garden, there's going to be resistance.

A lot of the gardening projects are finding that their participants had never considered food gardening as an activity or livelihood strategy before becoming involved in the project.

HBF: *How are the urban poor affected by global food price trends?*

JB: Crop failures, such as those in Russia recently, decrease yields. In 2008, biofuels removed a lot of food crops from the market. And the growing middle class is demanding more meat, which requires more staple foods to grow. All these factors mean there's less staple food for people to buy,

which pushes up the price. Another thing is that food is treated as a commodity that gets traded on the commodity markets. People play the markets for profit, which impacts on food prices.

Volatility in food prices impacts massively on the poor in cities, more so than on the rural poor, because the urban poor are more cash dependent. If something impacts on one's ability to buy food, then it has a serious impact. Our study showed that in South African cities, people don't have a lot of strategies (to deal with their food security) other than to buy food.

In our research in Cape Town, we found the poorest households were spending about 60 percent of their declared income on food. Other surveys have got it as high as 80 percent. When households are on that kind of margin, any increase in food price is going to hit them, far more so than for middle-income or rural households. The urban poor bear the brunt of this.

And food prices don't increase equally across the board. So, for example, an increase in maize price is going to impact on the urban poor far more than an increase in red meat will. Within this demographic, there's a strong dependence on staples, particularly mielie meal (ground corn, a staple food in much of southern Africa) and bread. And so it's the staple prices that are a real problem for the poor.

HBF: *South Africa has experienced big economic growth over the past decade and a half, but there's also been a rise in the number of very poor people and an increase in the divide between rich and poor. How does this impact on food access? Are more people vulnerable to going hungry if they're unemployed and poor?*

JB: Yes, particularly when you see how urban growth occurs, and where those urban poor are located in the city. They're in peripheral areas that are poorly serviced by transport, so they have to pay high rates to get into the city to look for work. Often people may not even try to find work because of this. They also have poor access to the markets. So it's not only an issue of poverty, it's also the way in which the spatial design of the city makes those households more vulnerable to food insecurity by creating greater distances between them and the resources they need to access.

HBF: *Please can you explain the links between HIV and food security, in terms of undermining human and social capacity?*

JB: There's a bidirectional element to this. Obviously, if someone's HIV positive and symptomatic, they're probably going to have a reduced capacity to earn an income, and this person is going to be more vulnerable to food insecurity. And this person's household is more likely to be affected.

But when you compare those female-centred households on an income basis with nuclear, or male-centred, or extended households of equal income, the female-centred households were more food secure.

If someone's asymptomatic, there are immediate challenges of ingestion of food, absorption of nutrients in the food, that kind of thing.

There's also the argument that food-insecure households are more likely to be impacted on by the disease – first, through increased social risk, because people may engage in risky behaviour as a strategy to access food. But there's also the idea that prolonged food insecurity reduces a person's resistance to infection. So this produces the kinds of health challenges that make people more vulnerable to being infected, and that make the progression of the disease faster.

HBF: *In terms of cultural choices around food, what have you found regarding people's decision making?*

JB: The tools we use are deliberately not culture-bound, so that they can be used across the different regions. But in our research, where we surveyed communities in Johannesburg – in Alexandra and Orange Farm and the inner city – we found that these poor communities were wealthier than those we surveyed in Cape Town. These Johannesburg communities aren't what you would consider wealthy, but their demographic did seem to be distinctly wealthier than that of their counterparts in Cape Town. And they had a much higher meat ingestion than those in Cape Town did. These households seem to prioritise getting a meat meal in a way that is quite unexpected to us as researchers.

One issue that's emerged, which has cultural implications, is the low dietary diversity within these communities. There's a strong dependence on staples, and diets are mostly cereal- and meat-based. The malnutrition associated with this is massive. Yet people say that this is their cultural diet.

There's a trade-off. How much of this is choice, and how much has become a culture out of a long-term history of not being able to access food? One can argue that a lack of dietary diversity is a cultural more, but malnutrition doesn't recognise culture.

HBF: *There are some interesting gender-related trends coming out in your research.*

JB: Yes. For instance, comparatively in terms of income, women-headed households tended to be more food secure.

We looked at female-centred households, which consist of an adult female and no adult male, with dependents. We looked at the nuclear family, which includes an adult male and an adult female. Male-centred households only have an adult male. And extended households have multiple generations, or non-related adults.

Our research has found that the female-centred households are generally poorer than the nuclear, extended, or male-centred families. This is unsurprising, since female-centred households generally have one income source, if there's one at all. But when you compare those female-centred households on an income basis with nuclear, or male-centred, or extended households of equal income, the female-centred households were more food secure.

The obvious assumption is that they're putting more of the household income towards food. For instance, the stereotype would suggest that in a nuclear household, food security might be low because the men choose to spend money on things other than food.

But there wasn't any higher expenditure on food in the female-centred household. So it wasn't that they were spending more on the food, and yet they were somehow managing to be more food secure. We think it could have something to do with their ability to use cooking technologies, and to choose lower-priced but longer-preparation food types.

So it's about knowing how to cook, rather than having money to buy food to cook. Again, we're talking about food access. What does it mean, and how do access to and use of food connect?

In terms of access to food and using cooking technology, it wouldn't surprise me if equal-income households with young black men were worst off in terms of food security. This is the one demographic we haven't looked at: to what extent young black men are able to access food through social networks – whether they're able to borrow and share food in the neighbourhood – and how they build those social networks.

HBF: *From the perspective of agriculture, has anyone quantified the impact of South Africa's land reform policy on food security in the cities?*

JB: Not yet. It's a vital area that we need to look into. AgriSA¹, for instance, is concerned about the implications of the movement of South African

There is concern that some land is falling out of production because of failing land reform. And this is largely because of a lack of support for emerging farmers.

farmers into Mozambique and other neighbouring countries, as well as the potential food insecurity coming out of the land reform process.

If a farmer has a ten-year planting cycle and harvesting strategy, for instance, and he's uncertain as to what's going to happen with a land claim on the farm, he's not going to start that process. So even if the farm doesn't end up being claimed, there's that instability. The farmer's not going to invest if he doesn't know he's going to get a return on the investment.

Farmers also complain about not being able to have a say in the prices of their land in land claim processes. They are price takers rather than price determiners. This can't help but have a knock-on effect, particularly in terms of price vulnerability. So there's a need to better understand how that food system operates: how that food comes into the city, where it's coming from, what the points of vulnerability are.

Certainly, the land reform question is one that hasn't been given that much attention in urban food security research. But likewise, the urban issue hasn't been given too much attention in the

agricultural research. So there's still a disconnect here.

There is concern that some land is falling out of production because of failing land reform. And this is largely because of a lack of agricultural extension officers² and other forms of support for emerging farmers.

One example I've heard is that of a mango farmer who had quite a marginal piece of land. To make it more viable, he built a factory for processing mango chutney. This made the farm profitable. But it went under claim, and no support was given to the emerging farmers. They are producing the mangos, but they're not doing any processing because they haven't been given guidance. They haven't been given financial facilitation to make that process happen. And therefore the farm's been run into the ground – not through any farming problems, but because of this business management problem. There's a lot of anecdotal evidence around this issue.

But the need for extension officer services also comes into the urban agriculture issue. A lot of the small-scale farmers who are getting set up in cities are not getting extension support.



Leonie Joubert

This interview was conducted by science writer Leonie Joubert on behalf of HBF. Joubert is working with the University of Cape Town's Centre of Criminology to investigate issues of food security for southern Africa's urban poor. www.scorched.co.za

Endnotes

- 1 AgriSA started out as an agricultural union and now helps shape agricultural policy and the profitability and sustainability of agriculture in South Africa.
- 2 Agricultural extension workers are an important link in the transfer of ideas between academic institutions and policy developers, and farmers on the ground.

Addressing Nigerian Food Insecurity and Agricultural Production in a Changing Climate Context¹

Introduction

Nigeria's food security situation is characterised by the threat of hunger and poverty, which confronts the 69 percent of the population that lives on less than Naira 100 (US\$ 0.7) per day.² Smallholder farmers account for 80 percent of all farm holdings, but crop yields are far below potentials. This is due to inadequate access to and low uptake of high quality seeds and inefficient production systems, leading to regular shortfalls in production.³ Although the growth rate averaged 7 percent in the 2006–2008 period, it is still below the 10 percent estimated as necessary for sustainable food security and poverty reduction. The country continues to import a substantial part of its food, due to underexploited agricultural potential.⁴

Currently, the population of Nigeria involved in farming is 60–70 percent. Agriculture contributed 42 percent to GDP in 2009.⁵ Despite a growing urban population, in 2000 at least 56 percent of the population resided in rural areas,⁶ where the main economic activity is agriculture. This puts the agricultural sector ahead of other sectors in terms of its importance for the food security, livelihood and well-being of most Nigerians.

Nigeria's diverse agro-ecological zones and other characteristics show that it has a high agricultural potential. Nigeria has about 79 million hectares of arable land, of which 32 million hectares is cultivated. Its surface water totals around 267 billion cubic meters, while underground water accounts for about 57.9 billion cubic meters.⁷ Although the figures given for the potential irrigable area vary, actual irrigated area is only a small fraction of that potential. As over 90 percent of agricultural production is rain-fed, rainfall patterns and amounts further influence agricultural production. Changes in climate thus have significant consequences for food security and crop production.

Impact of Climate Change on Food Security and Agricultural Production in Nigeria

The climate of Nigeria ranges from a very wet coastal humid zone, with annual rainfall around 4,000mm to the semi-arid Sahel region in the far north, with annual rainfall below 600mm.⁸ The inter-annual rainfall variability, particularly in the northern parts, is large. This often results in floods and droughts, with devastating effects on food production and associated sufferings. Odjugo reported an increasing trend in temperature in Nigeria since 1901 – gradual till the late 1960s, but sharper since the 1970s – which has continued to date.⁹ A major part of the middle belt sub-humid to semi-arid areas experienced rainfall deficits from 1991 to 2006 compared to the World Meteorological Organisation reference period of 1961–1990, while a few areas to the northwest experienced surplus rainfall over the same period.¹⁰

While climate change is contributing to aridity and desertification in northern Nigeria, it is increasing the frequency of flooding and erosion (gully, sheet and coastal) in the southern parts, especially in the coastal and rainforest zones.¹¹ The Nigerian Environmental Study/Action Team reported that sea-level rise and repeated ocean surges worsen coastal erosion, which is already a menace in that zone.¹² The associated inundation exacerbates the intrusion of seawater into fresh water sources and ecosystems, destroying such stabilising systems as mangroves and causing crop loss.

In the savannah and Sahel, the impacts of climate change include increased variability; decreased rainfall; increased temperature and evaporation; frequent drought spells, leading to water shortage; delayed and more variable onsets, leading to changes in planting dates of annual crops; increasing desertification and subsequently, inadequate grazing resources; increased movement of pastoralists to the humid south for fodder and



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water; and in some regions, increasing rural-urban migration.

These diverse climate-related impacts and potential adaptation measures have to be seen in the context of Nigeria's agro-ecological, production and socio cultural diversities, and in the context of rainfall and temperature trends and periodicities. Coping and adaptation measures to reduce vulnerability and strengthen the resilience of agricultural production thus range from actions at the farm household, community, state and national levels. The framing policy environment also determines how effective such measures are.

Government Policies and Programmes

In the past, a number of policies and programmes aiming to increase agricultural production, ensure food security and reduce poverty achieved less than the expected successes. These include recent programmes like the national food security programme and the National Fadama Development Programme (NFDP) of 1993.¹³ Some of these programmes, such as the NFDP, were established as responses to increasing exposure to droughts and associated losses in food production, and were meant to increase cropping in low-lying plains, using small irrigation measures. Reasons for their limited success include lack of in-depth studies and realistic pilot surveys on which the projects were based.

Many policies adequately address individual topics; however, limited human and institutional capacity, lack of coordination and low policy coherence remain persistent within and across both production sectors and Nigeria's three tiers of government (federal, state and local).¹⁴ For instance, in the fertiliser sector, Sanyal and Babu report a misfit of implementation with the agronomic requirements for the various agro-ecological zones, weak legal and regulatory frameworks, non-inclusion of major actors in the policymaking process, and incapacity of the macroeconomic environment to stabilise farm gate prices of fertiliser to a level that promotes wider adoption and increased use.¹⁵ With regard to food security, inadequate provision of physical and institutional infrastructure, together with a low use of the knowledge base, resulted in poor targeting, poor resource allocation, and inadequate responses to food insecurity.¹⁶ To foster an enabling environment, improve efficiency and avoid duplication and fragmentation of already

limited resources, the above limitations need to be addressed.

Nigeria has only recently begun to develop a policy framework to address climate change adaptation. A draft National Adaptation Strategy and Plan of Action (NASPA) has been developed by the Building Nigeria's Response to Climate Change (BNRCC) of the Nigerian Environmental Study Action Team (NEST), and submitted to the Nigerian Ministry of Environment.¹⁷ There is as yet no adaptation plan at the federal, state and local government levels, while low public awareness of climate change and its associated risks persist.

There is, however, a Federal Government of Nigeria (FGN) agriculture policy, which aims to '(i) attain food security, (ii) increase production and productivity, (iii) generate employment and income, and (iv) expand exports and reduce food imports thereby freeing resources for critical infrastructure development and delivery of social services'.¹⁸ The

Many policies adequately address individual topics; however, limited human and institutional capacity, lack of coordination and low policy coherence remain persistent.

FGN, through the Federal Ministry of Agriculture and Rural Development (FMARD), also follows the Comprehensive Africa Agriculture Development Program (CAADP) principles through a five-point agenda in its National Agriculture Investment Plan (NAIP): (1) develop an agricultural policy and regulatory system; (2) establish an agriculture commodity exchange market; (3) raise agricultural income through supporting a sustainable environment; (4) maximise agricultural revenue in key enterprises; and (5) improve water, aquaculture and environmental resource management. Under agenda (5), the FGN plans a carbon credit project through afforestation and reforestation, but provides no details on how it aims to achieve this.

In addition, the government has set a higher target of 10 percent annual growth rate for the agricultural sector, compared with the 6 percent



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annual rate agreed by CAADP in Maputo in 2003,¹⁹ and aims to achieve this through fostering an enabling environment – for example, through the above-mentioned five-point agenda. However, CAADP cautions that for Nigeria to increase productivity, it needs to increase efforts to adopt improved crop varieties, reduce post-harvest losses, expand irrigated areas and increase funding to agriculture.²⁰

CAADP also finds a lack of modalities for including and engaging the private sector and civil society; systematic linking of planning and decision-making between the federal and state levels; the use of evidence-based analysis to rationalise investments; and investments in strategic analysis and knowledge support systems. It thus recommends integrating the food security programmes into one framework to improve horizontal and vertical coordination, and to clarify the role and level of private sector engagement.²¹ However, the country has yet to address these challenges.

Agriculture is on the concurrent list of the Nigerian Constitution. This means that there are roles for all three levels of government: federal, state and local. These roles often overlap, while each state or local council is at liberty to set priorities, depending on local characteristics. However, the local government is closest to the communities and farmers. The roles of local governments in enhancing agricultural production, as contained in the New Policy Thrust of Agriculture, are: provision of effective agricultural extension services; rural infrastructures provision; management of irrigation areas; mobilisation of farmers for accelerated agricultural and rural development through cooperative organisations, local institutions and communities; provision of land for new entrants into farming, in accordance with the Land Use Act; and coordination of data collection at the primary levels.²²

The New Policy Thrust of Agriculture also assigns the private sector some roles. These include investment in all aspects of crop production; crop produce storage, processing and marketing; crop input supply and distribution; production of commercial seeds and seedlings under government certification and quality control; agricultural mechanisation; provision of enterprise-specific rural infrastructure; and support for research in crop production.²³

While the strength of the federal government lies in developing enabling policy frameworks for the

state and local governments to follow, its limitation lies in the fact that some relevant actors – such as the smallholders, who are the major producers, and the private sector – are not involved from the outset. Very few platforms exist to involve them in the policy process, even though they are expected to implement the goals set in the policies. On their part, the state governments could improve collaboration with their neighbouring states: for example, in coordinating agricultural development programmes.

For Nigeria to increase productivity, it needs to increase efforts to adopt improved crop varieties, reduce post-harvest losses, expand irrigated areas and increase funding to agriculture.

The FGN plans to expand irrigation to increase food security, and to implement adaptations to climate change. However, it is necessary that past irrigation programmes are reviewed, in order to ensure that successes are built upon, climate change impacts accounted for and mal-adaptations avoided.²⁴ The whole agricultural value chain, from production to marketing, also needs to be accounted for, as post-harvest losses and inadequate market access still deprive farmers and vulnerable populations of the full benefits of increased productivity.

Pathways for Climate Change Adaptation in the Agricultural Sector

Considering the various challenges (climatic as well as non-climatic), differential impacts, and the uncertainties in both climate projections and socio-economic driving factors, it is advisable that Nigeria focuses on increasing the resilience of agricultural production to climate change. Related measures will include building buffers and buffer capacities that enable adaptation, and improving self-organisation and the capacity for learning.

Ecological buffer capacity relates to growing crops that are tolerant to the prevailing climatic

conditions, adopting better agronomic practices that increase soil moisture holding capacity (e.g., conservation tillage), and soil erosion protection measures, such as terraces and bunds. Enhancing farmers' *socio-economic buffer capacities* would entail increasing their livelihood assets in ways that provide them with necessary human, financial, social, physical and natural capitals by improving their access to markets, information and new technology.

Improving self-organisation refers to how well farmers are organised by themselves to be able to address the problems they encounter with little external help.

We need a better understanding of the changes that the Nigerian climate has undergone and is likely to undergo in the future.

The *capacity for learning* refers to a farmer's management approach and openness for learning. As farmers are constantly adjusting their activities and learning from other farmers and their environment, indigenous knowledge reflects this adaptive learning; the question, then, is how farmers are enabled to learn from their experiences. Government thus needs to understand and strengthen indigenous knowledge systems.

Such a resilience approach needs to be region-specific, and adapted to socio-ecological characteristics. As adaptation is local, but with framing conditions defined at state, national and international levels, both a bottom-up participatory approach and a top-down guiding framework should be adopted. A major question for governments and support organisations would be in what ways, and how much, their policies and actions improve the farmer's buffer capacity, self-organisation and capacity for learning.²⁵

As part of the resilience approach, the following four core measures are crucial for successful adaptation: awareness; enabling policy and working conditions; understanding past and future climatic trends; and integrating local knowledge.

Although inadequate human capital is a major

issue, the constraining structural framework is even more debilitating, which demotivates the few skilled Nigerian professionals. Hence, improving working conditions (e.g., fostering an enabling policy framework and providing tools for Nigerian professionals to work with) and reforming structures (e.g., improving coordination) are major prerequisites for effective adaptation actions.

We need a better understanding of the changes that the Nigerian climate has undergone and is likely to undergo in the future. We need information on the likely duration and dynamics of certain trends and periodicities in climate (e.g., the drought and non-drought decades in the Sahel) that have prevailed over time and in certain areas, and to know whether they are likely to occur in future. Such insights will allow for better tailoring of adaptation measures and for ensuring flexibility in adaptation measures.

Farmers are continually adapting their production to variable social-ecological conditions, and they have valuable local knowledge that can provide useful insights to professionals. Considering the diverse agro-ecological zones, documenting and strengthening indigenous knowledge can provide stores of adaptation knowledge.

The following recommendations have to be understood as add-ons to the above points and to the need, discussed earlier, to improve policy coherence and coordination.

- **Develop improved crop varieties.** The federal and state governments should increase their support (funding, research infrastructure development) for plant breeders in developing high yielding and early maturing crop varieties that are not genetically modified; and for research in developing water, heat/drought tolerant, and disease resistant crop varieties. Farmer perspectives should be integrated in such schemes, and farmers supported to access the improved seeds. Government, in partnership with the private sector and research, should establish seed banks to maintain biological diversity.
- **Encouraging agro-forestry.** Agro-forestry is an age-old practice in the humid and sub-humid zones. This practice can be upscaled to other zones by integrating an agro-forestry component into state agricultural development programmes where they are currently non-existent. This is also beneficial for livestock production, as trees can provide fodder.

- **Increase support for reforestation and afforestation programmes.** Various local and state governments should establish woodlands with indigenous, fast-maturing plant species that yield domestic fuel wood for communities. Tree planting campaigns should continue, and a review of past programmes should be conducted to identify the underlying factors for success or failure and for effective follow-up.
 - **Promote a balanced mix of organic manure and inorganic fertilisers.** While organic fertilisers increase productivity in a more environmental friendly manner, Nigeria is not in a situation to relinquish the use of inorganic fertilisers. Its fertiliser usage of 7kg per hectare is one of the lowest in Africa.²⁶ Thus, government should establish an organic agriculture policy, and provide extension agents and farmers with the relevant knowledge of how to increase efficiency in using both fertiliser types.
 - **Improve Early Warning Systems (EWS)** for seasonal weather forecasts. Improving EWS, and addressing their challenges to disseminating weather forecasts to farmers on time, will increase farmer adaptiveness – e.g., through changing planting dates to adapt to changing conditions.
 - **Greater support for insurance.** Government should increase support for the Nigerian Agricultural Insurance Scheme, and incentivise farmers to register with the scheme. This will help insure farmers against crop failure due to flood, erosion and drought, and against livestock deaths due to flood, diseases and drought.
 - **Strengthen integrated pest management systems.** Pests can be controlled in different ways (biological, chemical, mechanical, cultural). Careful combinations of methods, adapted to local conditions, are more effective than are blanket solutions.
 - **Improve post-harvest management.** Post-harvest loss constitutes a considerable part of crop losses. The government could incentivise the private sector (e.g., through tax cuts) to invest in local food packaging and processing, and to address storage challenges at farm levels.
 - **Improve rural transportation.** Government should rehabilitate and construct new roads in the rural coastal and rainforest zones of Nigeria, where crop production is mainly done. This will help to improve farmers' access to markets.
 - **Improve agricultural extension services.** Improving and increasing the extension staff of government and NGOs and exploring radio-based extension services will be paramount in climate change adaptation.
 - **Improve agronomic practices to suit the agro-ecological zone.** This includes various conservation technologies: zero tillage; soil erosion control; rainwater harvesting; and various measures to reduce run-off and allow water to infiltrate and trap sediments during floods. Measures to reduce evaporation, such as planting cover crops, also control erosion and increase soil fertility. In some areas, drainage might be more important than irrigation. Increasing support for shore land protection and filling will check the landslides observed in coastal and rainforest zones.
 - **Livestock keeping.** Keeping livestock in confinement (zero-grazing) ranges instead of free ranges will help farmers increase control over livestock grazing. Government, the private sector and NGOs can help livestock farmers adapt to climate change by providing soft loans for transiting to feedlot livestock production.
 - **Weigh the benefits of productivity and adaptability in introducing livestock hybrids.** Government should increase support for livestock breeders in improving the disease resistance of the local Zebu breeds, which are well adapted to the Nigerian climate. Proven traditional cures for livestock diseases should be integrated into formal veterinary medicine after appropriate validations.
 - **Regular vaccination of livestock and cross-border diseases surveillance.** This will help reduce infections, especially those contracted from migrating animals.
 - **Provision of potable water for livestock.** Construction of dams, boreholes and wells is recommended to cater for livestock farmers' water needs during dry spells.
- On-farm diversification (e.g., integrating crop and livestock farming) is one way to reduce climate change impacts. However, this might lead to fragmentation of farmers' resources. Diversification into non-farm activities therefore needs to be carefully weighed in relation to the socio-ecological conditions.
- Finally, ownership of adaptation measures by stakeholders at the various levels – national, state

and local – is crucial for effectively increasing food security and adapting to climate change. These can be attained within the emerging national climate change policy and climate change adaptation strategy and plan of action. In addition Nigeria is on the verge of setting up a national climate change commission under the presidency. This commission should give great impetus to climate change adaptation and mitigation efforts.

Although these recommendations are specific, a broader framework and guiding principle for improving food security and agricultural production would include a clarification of roles and responsibilities between the three tiers of

government, even though this may seem obvious. It should be the role of the state governments to adapt the federal policies to their different areas and implement the relevant projects. Such a framework should make the states accountable to the federal government about the actions the states have undertaken to improve food security and increase agricultural production in their various areas. This will also enable comparison across states, which can foster their motivation. The federal government should concentrate on improving policy frameworks based on research evidence and an inclusive approach whereby relevant actors both outside and within the government are actively involved.

Endnotes

- 1 We appreciate the Nigerian Environmental Study Action team, Ibadan, Nigeria, which – in partnership with Marbek and CUSO-VSO of Canada – has been implementing a CIDA-funded project, 'Building Nigeria's Response to Climate Change', since 2007. Most of the lessons presented here have come from this project. We also acknowledge the research and pilot project partners of the BNRCC. Chinwe Ifejika Speranza acknowledges support from the German Federal Ministry for Economic Cooperation and Development (BMZ) under its flagship project, 'Climate Change and Development'; and the Swiss National Centre of Competence in Research North-South Programme's 'Research Partnerships for Mitigating Syndromes of Global Change'.
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Governance of the Food Sector in Kenya: Present and Future Challenges

Introduction

Kenya is faced with serious challenges in its food production. The country has had successive years of food deficit. Maize is the staple food; therefore, its unavailability is synonymous with food insecurity. In the last decade, Kenya has managed to have a surplus maize harvest only once, in 2006.¹ This abundant yield was attributed to good climatic conditions.

Over the past few years, the country has failed to produce above the consumption rate. The only statistics exhibiting an upward trend are those relating to population; by contrast, production volume, agricultural land, youthful farm labour and government extension personnel are dwindling. Both the government and the private sector need to re-examine their strategies and develop best practice policies – not only to achieve food security, but also to mitigate the adverse effects of climate change.

Other countries in the region still attribute changing climatic conditions to the routine vagaries of weather; however, the general consensus in Kenya is that climate change is already making itself felt. Kenya's drought cycle has shrunk from every four years, at most, to every one or two years. Rain used to be well spread, timely and predictable. Currently, if it rains, it does so unexpectedly, frequently causing floods and destruction of crops and livestock. Hence Kenya's agriculture, hitherto mostly rain-dependent, will have to gradually shift to dependence on irrigation.

Apart from experiencing natural causes of food insecurity, Kenya is getting used to a cyclic food deficit because of institutional and governance issues. The country experienced its worst food crisis in 2008, in the aftermath of the disputed presidential election. Over thirteen hundred people lost their lives, five hundred thousand people were displaced, fertiliser prices skyrocketed and close to 3.5 million bags² of on-farm stored maize were destroyed.

Irregularities in the handling of grains by the National Cereals and Produce Board (NCPB) compounded the problem. Powerful government officials blatantly sold maize held by NCPB to their political sympathisers, who in turn sold it to millers at exorbitant rates – all this without moving a single grain out of the NCPB stores. The result was that the millers passed the burden to consumers, putting flour out of reach for many of the rural and urban poor.

All this demonstrates that Kenya's food security is a complex matter. This article focuses largely on some specific aspects of this multifaceted issue: irrigation, governance and climate change.

Demographic Changes and Agriculture in Kenya

Kenya's population has grown from 28.7 to 38.8 million in the past ten years, reflecting an annual growth rate of about one million people. The result is heavy land fragmentation and more mouths to feed, against the backdrop of an increasingly unpredictable climate.

Agriculturally productive areas – a mere 18 percent of Kenya's land mass – are experiencing the fastest population growth. Viable agricultural land is being subdivided into ever more fragmented, uneconomical units. When a farmer owns only a quarter of an acre, the output may not sustain him and his family, let alone provide surplus for the market. Heavy land fragmentation has also made mechanisation of agriculture impossible. Over-reliance on labour-intensive agriculture results in low productivity, and consequently, food insecurity.

Kenya's government extension services have not been able to cope with the high number of farmers. While the Food and Agriculture Organization of the United Nations recommends a ratio of extension officers to farmers of 1:200 for a country like Kenya, the current ratio stands at 1:400 or even worse. Most, if not all, government extension officers are not trained or equipped with respect to climate change adaptation.



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Apart from long-term family planning measures, the only way out is for the country to evolve its technology; incorporate intensive and extensive farming; and develop meaningful policies that include irrigation and other climate change adaptation measures.

Climate Change, Water and Food security

Climate change has contributed to the depletion of Kenya's granaries. It has not only left farmers poorer and food-insecure, but has also formed a pattern where either there are no rains at all (drought), disastrous heavy rains, or good rains at the wrong times.

Kenya's agriculture is largely rain fed. A sound and adequately supplied irrigation infrastructure is prerequisite to ensuring food security in the country. But the challenges to effective irrigation are many.

Deforestation

Firstly, water has always been a scarce resource in many parts of the country. The scarcity has been exacerbated by Kenya's recent heavy deforestation, the largest of which has occurred in Mau Forest,

Kenya's agriculture is largely rain fed. A sound and adequately supplied irrigation infrastructure is prerequisite to ensuring food security in the country. But the challenges to effective irrigation are many.

the country's largest water catchment area. Over the past decade, more than forty-six thousand hectares of Mau Forest have been converted to alternative land uses like settlement and private agriculture. Massive, countrywide deforestation, caused mainly by large-scale encroachment, charcoal production and logging of indigenous trees, has dried out boreholes and rivers, impacting tremendously on water resources.

Environmental protection and conservation through tree planting is a major strategy in addressing the climate crisis, both locally and internationally. The Kenyan government, through well-structured radio programmes, is encouraging

communities to plant trees. This is a big step towards mitigating the impacts of climate change.

The government has also embarked on afforestation efforts that have seen the Mau Forest replanted with thousands of seedlings. In a bid to mitigate the effects of climate change, the Ministry of Environment and the Green Belt Movement are involved in massive tree plantings throughout the country. They are continuously engaging communities, especially youth and women, in planting trees through their agro-forestry programmes.

Irrigation Costs

Secondly, the costs involved in laying down an irrigation infrastructure are enormous. Hiring a host of engineers; buying the equipment; persuading local communities to accept compensation for part of their land; ensuring the continuous and sustained flow of water – these challenges present stumbling blocks, especially to small- and medium-scale farmers in Kenya. But once erected, irrigation infrastructure would provide vital relief in times of drought. It would also be very handy in redirecting destructive surface run-offs from torrential rains to irrigation storage dams.

However, irrigation itself is not a silver bullet. Many other factors contributed to the serious food crisis of 2008, including poor governance of the agricultural sector; political turmoil surrounding the disputed presidential election of 2007; drought; and unprecedented hikes in fertiliser prices. The government responded to this food crisis by unveiling an irrigation stimulus package in order to boost rice and maize production. Rice production subsequently surpassed its projection by 1 percent, achieving 84 percent of revenue; but maize did dismally, achieving only 40 percent of projected yield and 28 percent of revenue.

Irrigation efforts have not been much of a success because corrupt, inefficient personnel oversee the production processes. Lack of water for irrigation has been yet another obstacle to establishing food security. Some irrigation water is drawn from seasonal rivers that only flow at times when they are not critically needed, and government irrigation officials have had difficulty building dams for water harvesting during times of plenty.

Unavailability of irrigation water also results from lack of planning. However, the Kenyan government is currently involved in negotiations,

through the Nile Basin Initiative, to alter the Nile Treaty of 1929. The treaty, which Britain signed on behalf of its east African colonies, forbids any projects that could threaten the volume of water reaching Egypt. Under its provisions, Kenya and its neighbours are barred from using Lake Victoria for irrigation, while Egypt is guaranteed access to 55.5bn of a total of 84bn cubic metres of water. The agreement also gives Cairo the right to inspect the entire length of the Nile.

The Nile Treaty is gravely resented by the now-independent east African countries, as it poses a serious limitation to any long-term or large-scale agricultural expansion. Cairo continues to stand by the treaty, and this has already triggered major international conflict.

Meteorological Issues

Farmers have been dissatisfied with the Kenya Meteorological Department's inaccuracies in predicting weather. These inaccuracies are a clear sign that even those who have the technological know-how are grappling with the unpredictable consequences of global climate change. As a result, farming is increasingly becoming a risky business enterprise.

Since extreme weather conditions have become more frequent, one would expect insurance agencies to step in and help mitigate the effects of climate change on agriculture. One would also expect the financial sector to offer loans tailored to suit farmers and their farming periods. But Kenyan insurance companies are not willing to cover farmers because of the associated high risks, which are now exacerbated by climate change. Banks and micro-credit finance institutions have also shied away from this sector, citing the low rate of loan repayments occasioned by losses due to, amongst other things, bad weather/climatic conditions.

Agricultural Research for Food Security

Kenya has enough scientists capable of providing quality research aimed at boosting food security in the wake of climate change. Potential capacity also exists in other major development partners, such as the Ministry of Agriculture and the Ministry of Environment and Natural Resources. Universities and colleges could also provide a continuous stream of updated and appropriate technology for rural development, if effectively mobilised.

Various research organisations, such as the

Kenya Agricultural Research Institute (KARI), the Tegemeo Institute of Egerton University and Sower Solutions Limited, have already done formidable research in both the agricultural and environmental sectors. But they lack the muscle to disseminate these vital insights effectively to farmers across the country.

Weak and/or nonexistent supportive policies and legal frameworks for both the agricultural and environmental sectors have impacted negatively on Kenya's food security and climate mitigation attempts.

Seed Research

Developing seeds resistant to adverse climate changes should be one of the core businesses of the Kenyan government. Presently, however, cases of farmers buying fake/substandard/counterfeit seeds for planting are rampant.

Other countries like Egypt, Burkina Faso and South Africa have adopted genetically modified seeds (GMOs) for the production of food staples and consequent consumption. GMOs are very controversial worldwide, however, and Kenya is rife with debate over whether to accept these foods, and even whether to grow such seeds in the country.

Kenya has fully operational biosafety legislation guidelines, which encourage transgenic research to help to address the country's food woes. But the government has yet to allow or disallow the production and consumption of such products. However, having these biosafety regulations in place will ensure that products meet standards for commercialisation, and provide the basis for good product stewardship.

Policy Development and Implementation

Weak and/or nonexistent supportive policies and legal frameworks for both the agricultural and environmental sectors have impacted negatively on Kenya's food security and climate mitigation attempts. Where evidence of such policy research

exists, it has frequently been ignored.

Policies are typically imposed from the top down, without consultation with those most affected by them. Policymakers at the various agricultural sector ministries often formulate policies with total disregard to the views of other sector stakeholders. The country ends up with retrogressive policy documents that serve the interests of only a few well-positioned and powerful government officials.

The 2003 African Union (AU) Maputo Declaration directed all AU member countries to increase investment in the agriculture sector to at least 10 percent of the national budget by 2008. Kenya has not lived up to this declaration: investment is currently at 5 percent of her national budget.

Market Reforms and Food Security

Food is produced with no clearly defined, remunerative market or marketing system. As a result, unscrupulous middlemen have multiplied. The government's National Cereals and Produce Board (NCPB) has set producer prices without consulting the farmers or conducting proper cost benefit analyses. This has not worked well for either producers or consumers, and has also distorted the staple food market. Lack of developed physical and soft infrastructure has also made it very difficult for the farmers to access better markets.

In a country whose democratic space has

Diversification has been one way of ensuring that farmers move towards food security in the face of climate change.

increased significantly in the last eight years, political goodwill is an important factor for food governance. Thus, it is encouraging to note that the government has done quite a bit to prevent foreign currency being spent on food imports. In 2008/2009, the government subsidised most agricultural inputs, such as fertilisers, chemicals and seeds. This was a good way to ensure that farmers went back to their farms in spite of global price hikes in such commodities.

Diversification has been one way of ensuring that farmers move towards food security in the face of climate change. The government and the private

sector have managed to sensitise farmers to the benefits of diversification and crop rotations. This has been a success in most parts of the country, although more effort is still called for.

Most countries in the world rely on cereals to feed them; Kenya is no exception. The NCPB has the mandate of ensuring that the country has enough cereals in its strategic reserve. The agency has, however, been riddled with mismanagement issues, coupled with corruption claims. Several thousands bags of maize went missing from its warehouse without proper explanation. A major maize scandal in 2008 saw the then-agriculture minister narrowly escaping a censure motion in Parliament.

With the near-collapse of the NCPB, the government and the private sector are engaged in introducing a warehouse receipt system and a commodity exchange, where grains will be traded like shares on the stock market. The introduction of a structured grain trading system will ensure that cereals are stored and sold at a time determined by the farmer/ depositor.

There is huge potential for value addition to agricultural produce through agro-processing. Kenya's agriculture has traditionally been dominated by primary production, and there has thus been very little on- or off-farm processing of agricultural produce. Consequently, most produce is currently marketed in unprocessed form. Recognising the role of research in agro-processing, the Kenyan government is seeking to revitalise agriculture by supporting research on food technology, aimed at increasing the range of consumable farm products.

Kenya is signatory to various trade protocols and agreements with the East African Community (EAC), the Common Market for Eastern and Central Africa (COMESA) Free Trade Area, the Inter-Governmental Authority on Development (IGAD) and the World Trade Organization (WTO). As the East African Common Market becomes fully operational, cereals – the main food staple in the region – will have no boundaries. Existing ad-hoc export bans on cereals to neighboring countries will be a thing of the past. Such bans only make one country more food secure than its neighbours, while confining producers to local (and likely less profitable) markets.

Agricultural export trade to far-end Europe and other Western countries must not be seen as exacerbating food insecurity in the region, but rather as generating valued foreign exchange. This money

can be used, either to produce more food in the country/region, or to buy food from local farmers, thereby further empowering them.

Conclusion

Kenya's agricultural sector has a lot of opportunities and potentials that, if sustainably used, can ensure food security while also addressing the impact of climate change. Great opportunities lie in commercialising agriculture, or making farming a viable business reality. This goal is inscribed in the country's core planning document, Vision 2030, which clearly calls for value addition and market development along value chains. Vision 2030 also recognises that market-driven and private sector-led growth transforms the agricultural sector, suggesting an urgent need for sustained public and private sector partnerships.

A country dependent on foreign exchange for its food may not be as food secure as one that produces enough food within her own boundaries. Kenya's food security can be improved by means of increased productivity, through interventions that reduce the high risks of smallholder farming – for example, collective action to form producer and marketing groups that can exploit economies of scale. To make farming a viable business, there is also a need for the provision of timely market information.

Further, renewed and sustainable utilisation and conservation of the natural resource base is necessary. Besides helping conserve the environment, the sustainable, eco-friendly development of natural resources would greatly support Kenya's food security, while also alleviating the challenges occasioned by global climate change.

Forest cover must be replenished to stabilise the ecosystem; soil conservation must be observed; and well-researched, widely consulted policies should be formulated and instituted to stimulate food security and mitigate the effects of climate change. There must be policies that protect farmers, especially smallholders, from counterfeit inputs that not only reduce their yields (and therefore incomes), but that also compromise the safety of the foods produced.

With the establishment of the East Africa Common Market and COMESA's 'maize without borders' initiative, Kenya needs to encourage agricultural competitiveness – internationally, regionally and within its local boundaries. It must enhance effective partnerships along agricultural

product value chains, while ensuring that the appropriate parties benefit and participate in policy formulation. There is need to improve both physical and soft infrastructure and their use. Enhancing the roles of science, technology and innovation in agriculture for socio-economic purposes would be a step in the right direction.

Endnotes

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Investing in Agricultural Export

Ethiopia's Big Hope to End Poverty?

Introduction

Ethiopia is one of the world's poorest countries. Hit by droughts and famines over and over again, the country is suffering from chronic food insecurity. In 2010, at least 3.5 million Ethiopians were dependent on food aid, while a further seven million received cash or food under the government's 'Productive Safety Net Program' to sustain their lives.

Hunger scandals coupled with civil wars and riots have brought down two successive regimes in Ethiopia: those of Emperor Haile Selassie and Marxist Colonel Mengistu Haile Mariam in 1974 and 1991 respectively.

But the second most populous nation in sub-Saharan Africa is determined to end its long history of dependence on international food aid.

Ethiopian agricultural production has grown steadily, from 11.9 million tons in 2005 to 18.08 million tons in 2010; but it still remains low relative to its potential. Climate change, population growth and poor agricultural technologies have been the main impediments to the productivity of smallholding farmers in rural Ethiopia.

A recently approved five-year economic roadmap, dubbed the Growth and Transformation Plan (GTP), aims to double Ethiopia's agricultural production and GDP in just five years (2010–15). Investment in agriculture is at the centre of the strategy, the notion being that the booming sector will stimulate industrialisation and ultimately drive structural transformation of the economy.

Agriculture is Ethiopia's main economic activity, contributing 48 percent to the GDP, and employs more than 80 percent of the country's population of eighty-five million. Export earnings from agriculture reached almost US\$2 billion in 2009–2010, up from 1.45 billion in the previous budget year.

For the government, this is only the beginning. It plans a further increase of traditional agricultural export products, such as coffee and *khat* (a stimulant leaf popular in the Horn of Africa and Yemen). Great hope has also been placed in the booming development of flower and other horticulture products, which have

recently emerged as a growing source of foreign currency. The government is strongly encouraging international investment in this sector, hoping to create thousands of jobs for Ethiopians, facilitate knowledge and technology transfer, and boost tax revenue for its treasury. Investment in large-scale mechanised farming is also promoted as part of a strategy to modernise Ethiopia's agriculture, which is still dominated by rain-fed subsistence farming.

Coffee: The 'Green Gold'

Ethiopia is the biggest coffee exporter in Africa. Coffee remains the country's main source of foreign currency: Ethiopia exported 172 tons in the 2009/2010 fiscal year, earning US\$528 million in much-needed foreign currency. 'Green gold' is a main source of income for nearly twenty-nine million people in Ethiopia. Seventeen million farmers are directly engaged in coffee production in the form of either wild forest coffee or coffee farms.

However, the contribution of this commodity to poverty alleviation has historically been low, due to a poor marketing system. For many years, coffee farmers have not been benefiting; they earned only 6 percent of the profit from their beans, while the middlemen in the supply chain got 33 percent. It was not only farmers who lost out: the Ethiopian government was not in a position to collect proper revenue and taxes from coffee exports. For the last sixty years, the sector has lacked control, and thus has been underutilised.

By the beginning of 2009, the Ethiopian government introduced a new and modern coffee marketing system called the Ethiopia Commodity Exchange (ECX). This is a platform for collecting, storing and auctioning coffee to the international market, and ensuring the benefit of local farmers. The introduction of this system ignited a controversy after it expelled some traditional private coffee exporters. Since the establishment of the ECX, however, coffee farmers, new exporters and government are said to be enjoying greater benefits by supplying better quality coffee to the international market.



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Khat: The Emerging Commodity

Khat is a stimulant leaf grown mainly in the southern and eastern parts of Ethiopia. It is widely consumed in East Africa and the Middle East, and is already one of Ethiopia's most important export products. Yemen, Saudi Arabia, Somalia and Djibouti are the main destinations for Ethiopian *khat* exports. Official figures for 2009 claim an export value of US\$280 million, but the numbers are understated. Illegal cross-border trade between Ethiopia and neighbouring Somalia, alone, is estimated to have reached US\$7 million annually. In contrast to coffee, *khat* is the most unregulated Ethiopian export item.

The lucrative *khat* business has attracted thousands of farmers in eastern Ethiopia, who have turned their crop production plots to *khat* growing fields. The plant needs large amounts of water, and rapidly depletes ground- and other water resources. The catastrophic consequences are most evident in eastern Ethiopia, where Lake Haromaya has dried up because of vast *khat* production in the area. Once a beautiful oasis, Lake Haromaya was a source of drinking water for three million people in the area, and crucial for other economic activities.

Deforestation of the lake's surroundings to expand *khat* farms, coupled with excessive motor pumping of the lake, easily depleted the water in a short period of time. Lake Haromaya dried up in 2006, and the lake bed has become a football field for local children.

Flowers and Horticulture

The floriculture sector in Ethiopia is considered to offer untapped potentials; and lured by its promised income, the government is offering a basket of incentives to investors entering the perishables business. In the 2009/2010 fiscal year, earnings from horticulture exports stood at US\$250 million, accounting for 12 percent of the total income from exports of agricultural commodities. In 2006, the sector's contribution was only 3 percent. No wonder, then, that horticulture is now a priority in the government's development strategy. The sector enjoys many privileges, such as duty-free importation, an income tax holiday, a customs warehouse facility, easy access to land on lease and a voucher system for investors.

Such incentives, coupled with the country's favourable agro-climatic and socio-economic conditions, have led to a remarkable boom in this sector. Some eighty-five companies are growing flowers across the central Ethiopian highlands and Rift Valley lowland areas, generating employment opportunities for sixty

thousand poor community members, primarily women and youth.

Revenue from fruits and vegetables grew by about 20 percent in the period from 2006 to 2010. Thus, this sector represents one of the fastest-growing areas in the economy. During the 2009/2010 Ethiopian budget year, the production of vegetables, fruits and herbs increased to 66,400 tons, exceeding the projected 58,400 tons. Nevertheless, the sector failed to generate the government's target income of US\$95.7 million, fetching less than half of that at only US\$46 million.

According to Mr. Dejene Muluneh, acting director of the Ethiopian Horticulture Development Agency, 'This is due to the fact that such products are easily perishable, and that prices fluctuate in international markets'.

The sector also failed in terms of expansion, according to a report from the agency. Only 33.3 percent of the government's plan to place 4,717 hectares of land under horticulture cultivation was realised, with only 1,570 hectares cultivated.

The government's current plan to expand horticulture would cover 33,000 hectares within five years. Of this, three thousand will be for flowers, fifteen thousand for vegetables, and another fifteen thousand for the production of fruits. Currently, the average size of fruit and vegetable farms is only 1000 and 1,200 hectares, respectively. But government is planning to increase this to 1,500 hectares for each. The average size of a flower farm will expand from the current 1,400 to three thousand hectares. According to the Horticulture Development Agency's plan, this expansion could potentially raise the foreign currency gain to US\$700 million or even US\$800 million annually.

Ecological and Social Implications

These rosy prospects notwithstanding, there are issues of negative ecological and social impacts questioning the sustainability of these investments. In a letter to the Ministry of Labour and Social Affairs, the Ethiopian Trade Union reported poor working conditions and low wages, and complained that flower farm owners had banned any form of organised labour association. According to the union, three workers on two private flower farms died from illness related to hazardous chemicals.

The Pesticide Action Network reports the case of Gashaw Menkir, a worker at Golden Rose PLC – the oldest Ethiopian flower farm, owned by a UK-based firm. Due to unprotected exposure to chemicals sprayed on the farm twice a day, Menkir experienced persistent headaches, skin problems and impotence. After eight

years with the company, he lost his sight and his job.

In total, the Ethiopian Trade Union has received 105 health-related complaints from various flower farms, but lacks the capacity to either investigate or voice the concerns of the sixty thousand flower farm workers across the country. The flower sector is barely supervised in terms of the import, storage and use of chemicals. The agricultural chemicals and inputs control section of the Ministry of Agriculture has been tasked with supervising the import and use of chemicals, but is compromising routine import customs controls for flower companies – this despite the sector's imports of outdated and hazardous chemicals.

The effluent from flower farms also endangers water

While the government eyes rural Ethiopia for further horticultural expansion, there is growing concern about the impact of these investments on local communities.

sources. Effluent has already contaminated Lake Ziway, which supports the livelihoods of more than twenty thousand people engaged in fishing and vegetable and fruit farming. The effluent has also affected cattle around the lake area. The Ethiopian Horticulture Exporters Association endorsed a self-regulating code of conduct in 2007, but compliance by the companies remains questionable. The regulation classifies flower farms in three categories – bronze, silver and gold – based on their management of social, ecological and worker-safety issues. Since the introduction of the code, only two out of eighty-five farms have achieved 'gold' status.

Moreover, the code is merely self-regulatory, and thus is not supervised by government, non-governmental organisations or any other independent body. Trade unions and environmental organisations have demanded an independent supervisory body to address the untold suffering of ill-equipped workers on flower farms.

While the government eyes rural Ethiopia for further horticultural expansion, there is growing concern about the impact of these investments on local communities, who feel they have been pushed off their farm and grazing lands. In December 2010, some 320 farmers in the major flower farm investment area of Bishoftu, 45 km south of Addis Ababa, staged a demonstration. They

were demanding fair compensation for land they had rented to seven flower companies active in the area. The demonstration was aborted by the federal police, and some of the farmers' representatives were arrested for three days on charges of organising an illegal demonstration. The land leased by the flower farms in the area is estimated at 183 hectares. The farmers say that the flower companies and local officials persuaded them to lease the land with promises of better social services, such as village schools and health centres. They also alleged that they had been underpaid for the use of their land. Mr. Biratu Merga, 31, a farmer and father of five, signed a fifteen-year contract to rent out 1.8 hectares to a flower farm. For the first five-year period, he has received only half of the agreed payment. With inflation running at 10 percent and more, he and other farmers feel that even the agreed payment is not sufficient to sustain their lives over the next ten years.

If the companies refuse to pay more rent, Biratu and many other farmers want to reclaim their land and resume crop production. Many are worried that the fertility of their farmlands could have been damaged by the use of chemicals. They blame local officials and mediators for pressuring them to sign the agreements without considering the long-term consequences.

The case of the Bishoftu farmers reflects Ethiopia's dilemma, and exposes the government's failure to weigh social and ecological issues against growth in the horticulture sector.

Around 70 percent of Ethiopian flower farms are located in the water-scarce Rift Valley lowlands. About seventeen farms are pumping water from Lake Ziway, one of the three major lakes that provide fish for Ethiopia. According to a 2008 report by the Ethiopian Flower Alliance, excessive extraction of water by means of motor pumps is leading to a fast decrease in Lake Ziway's water levels. Many more flower farms also pump water from deep ground wells, posing a further threat to the supply of drinking water for the local population.

The other troubling aspect of Ethiopia's horticulture boom is the use of public money to finance the sector, and the issue of ensuring repayment. As part of the incentive package available to investors in the flower sector, some observers claim that a loan of around 700,000,000 *birr* (US\$44 million) was allocated to the industry from public money managed by the Development Bank of Ethiopia. In 2010, five flower firms were foreclosed after they failed to repay the bank loans. Some of these firms have been accused of misusing the loans – for example, by transferring money to their other businesses.

Foreign Investment in Commercial Farming

Since 2008, the Ethiopian government has allowed big commercial farms to cultivate lands in rural Ethiopia. India, Saudi Arabia, Pakistan and Kuwait are among the countries hoping to harvest crops on large-scale farms in Ethiopia for consumption in their homelands. Three million hectares of land (about the size of Belgium) have been designated as available for foreign agricultural investors. So far, less than one million hectares are actually being cultivated.

The government is hoping that these large-scale farms will increase its export earnings and help to introduce improved agricultural technology to local smallholder farmers. But the scheme is under severe criticism for encouraging the export of food while millions of Ethiopians remain dependent on food aid. Without proper policy and regulation, critics argue, allocating vast farming land to foreign investors contributes to neither reducing the country's persistent poverty nor achieving food security. The large farms also pose a threat to Ethiopia's rich biodiversity. Liberal international financial institutions, such as the World Bank, are issuing cautions regarding the country's policy of leasing out large chunks of land.

Ethiopian law requires that an Environmental Impact Assessment (EIA) be carried out for every new farming project. However, the country faces serious challenges to enforce this law, due to fragmented institutional arrangements and minimal awareness of the EIA requirement in government institutions. According to a publication by a local ecological rights group, Melca Mahiber, almost all large-scale farm projects either evaded EIA procedures or prepared their own EIA reports, favouring their business interests.

For example, the Saudi Arabia-based Saudi Star agro-business leased more than two hundred and fifty thousand hectares of fertile land in western Ethiopia, including a forest that supported local communities through bee keeping, spices and fuel wood. The company cleared the forest and other vegetation to start its cultivation. Saudi Star also used water from the Elwero River, which local people depend on for various purposes, including drinking and fishing. It took protests by local communities against both the company and local authorities before the national government asked the regional government of the federal state of Gambella to suspend Saudi Star's expansion into the forest areas.

In the Western Oromiya region, the Indian giant Karaturi International owns more than three hundred thousand hectares of land. For this project, 123 farmers in the Bako area were displaced from their farmland,

with no compensation other than an empty promise of employment. The company has brought two hundred farmers from India to work on the project, but has hired only seven locals as security guards. For the local community, this is a clear sign that there will be no sharing of agricultural technologies, nor any other benefit-sharing relationship with the company.

The government defends its policy, insisting that the country's small-scale farmers will play a crucial role in leading the country to sustainable food security. However, local farmers and pastoralists are increasingly being displaced to make space for big farms. Land is the main source of wealth for rural farmers dependent on subsistence farming, but many still lack binding titles for their plots, and have no legal protection against large-scale investment projects in their regions. While promoting large-scale agriculture in the country, Ethiopia needs to recognise and enforce land rights for small farmers to avoid negative social impacts.

Conclusion

Trade statistics of recent years undoubtedly demonstrate the ability of Ethiopia's agricultural sector to generate foreign exchange earnings, which are much needed for the country's further development. And there are certainly more untapped opportunities in the sector; the government is right to pursue and develop this potential. However, these investments also bring a risk of lasting damage to the environment and the communities concerned. Workers must be protected against health hazards, and natural resources must be managed sustainably and maintained for future generations.

Small-scale farmers will remain the backbone of Ethiopian agriculture for the foreseeable future. This sector employs a vast majority of the country's workforce and supplies its means of subsistence. Thus, it plays a crucial role in the country's social cohesion. Consequently, it is important to strengthen and help the sector cope with the challenges it faces, such as climate change and a rapidly growing population. This does not preclude investment in large-scale farming, but it is crucial not to leave small-scale farmers behind. Efforts to transfer adequate technology as part of international investment deals must be stepped up, making modern agricultural techniques accessible to Ethiopian farmers.

The agricultural sector in Ethiopia has huge potential to contribute to the country's development. But if its success is to truly benefit all Ethiopians and bring an end to chronic poverty, the sector's social and environmental impacts need to be addressed.

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