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*Fantu Cheru* received his PhD in Political Economy from Portland State University. He is a socio-economist who specialises in rural development, small-scale enterprise environmental planning and resource management, urban and regional planning, participatory research methods, and institutional building and training. His latest publications include *The Rise of China and India in Africa: Challenges, Opportunities and Critical Interventions* (co-edited with Cyril Obi, 2010) and *Africa and International Relations in the 21st Century* (co-edited with Scarlett Cornelissen and Timothy M. Shaw, 2011).

*Renu Modi* is a senior lecturer and former director (2008–10) of the Centre for African Studies, University of Mumbai. She is a political scientist who graduated from the Lady Shri Ram College for Women, Delhi University. She received her PhD from the School of International Studies, Jawaharlal Nehru University (JNU), New Delhi. Her recent books are *Beyond Relocation: The Imperative of Sustainable Resettlement* (editor, 2009) and *South–South Cooperation: Africa on the Centre Stage* (editor, 2011), and she has published on issues relating to India–Africa economic relations from a historical as well as a contemporary perspective in reputed journals. She has also served as the social development consultant with the Inspection Panel of the World Bank.

# **Agricultural development and food security in Africa**

The impact of Chinese, Indian and Brazilian investments

edited by Fantu Cheru and Renu Modi

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## Abbreviations

ABC	Agência Brasileira de Cooperação (Brazilian Cooperation Agency)
AGOA	African Growth and Opportunity Act (US)
Apex	Agência Brasileira de Promoção de Exportações e Investimentos (Brazilian Trade and Investment Promotion Agency)
AU	African Union
AUC	African Union Commission
BRICS	Brazil, Russia, India, China and South Africa
CAADP	Comprehensive Africa Agriculture Development Programme
CII	Confederation of Indian Industry
DAC	Development Assistance Committee
DFTP	Duty-free Tariff Preference (scheme)
ECOWAS	Economic Community of West African States
Embrapa	Empresa Brasileira de Pesquisa Agropecuária (Brazilian Agricultural Research Corporation)
EU	European Union
EXIM Bank	Export-Import Bank of India
FAO	Food and Agriculture Organization (United Nations)
FAOSTAT	Statistics Division of the Food and Agriculture Organization of the United Nations
FARA	Forum for Agricultural Research in Africa
FDI	foreign direct investment
FGV	Fundação Getulio Vargas
FOCAC	Forum on China–Africa Cooperation
G8	Group of Eight
G20	Group of Twenty
GDP	gross domestic product
GTP	Growth and Transformation Plan
GVO	gross output value
HIPC	Heavily Indebted Poor Country
HRS	Household Responsibility System
IAFS	India–Africa Forum Summit
IAIARD	India–Africa Institute of Agriculture and Rural Development
IBSA	India, Brazil and South Africa
ICAR	Indian Council of Agricultural Research
ICT	information and communications technology
IIFT	Indian Institute of Foreign Trade
KBL	Kirloskar Brothers Limited
LDCs	least developed countries

LOC	line of credit
LSCF	large-scale commercial farming
M&M	Mahindra and Mahindra
MDA	Ministério do Desenvolvimento Agrário (Ministry of Agrarian Development)
METASIP	Medium Term Agriculture Sector Investment Plan (Ghana)
MOARD	Ministry of Agriculture and Rural Development (Ethiopia)
NEPAD	New Partnership for Africa's Development
OECD	Organisation for Economic Co-operation and Development
REC	regional economic community
RMB	renminbi
SBR	Standard Bank Research
SFAC	State Farm and Agribusiness Corporation
SNNPR	Southern Nations, Nationalities and People's Region
SOE	state-owned enterprise
TVE	township and village enterprise
UN	United Nations
UNDP	United Nations Development Programme
US	United States (of America)
WAPCOS	Water and Power Consultancy Services
WTO	World Trade Organization

## Preface

As the global food crisis deepens, owing to declining agricultural productivity as a result of climate change, shortages of fertile land and water to expand production, the growing competition for land to grow biofuel as a cheap energy source, and high population growth in the developing world, agricultural development and food security are back at the top of the development agenda. Increasingly, both sovereign and private investors have set their eyes on the continent of Africa, with its abundant land, as a potential source of global food and commodities. This growing interest in African land has brought with it competing approaches on how to unleash the continent's agricultural potential. On one side stand domestic and foreign actors who want to see agricultural transformation along the lines of Western Europe, the United States and other major agricultural exporting countries, with the emphasis on advanced industrial agriculture, mechanisation and chemical fertilisers. On the other stand domestic forces that see great potential in investing in small-scale farms, with increased emphasis on environmentally sound production systems aimed at meeting family food security. The proponents of the 'small is beautiful' approach regard the overemphasis on industrial agriculture as a threat to the existence of small-scale farmers and to the land and water resources on which they rely.

The debate on small-scale versus commercial farming does not adequately address the root causes of the productivity crisis in African agriculture. Many of the key blockages to realising ambitious development goals lie in political and institutional issues that influence the content and direction of agricultural policy making in Africa. In the present context, concern over the speed and scale of recent foreign acquisitions of African land has overshadowed the need to formulate and implement agricultural policies conducive to unleashing the productivity of both small-scale farmers and big commercial farmers in a mutually complementary way in order to achieve national food security, provide jobs, reduce poverty and establish the agricultural sector as an engine for Africa's industrialisation. It is particularly urgent to draw lessons from highly successful developing countries such as India, Brazil and China, which have been able to embark on a programme of agriculture-led industrialisation, lifting millions of their citizens

out of poverty in a relatively short 30-year period and building a highly competitive industrial sector.

The task of transforming African agriculture and achieving food security has been reaffirmed by the African Union, as exemplified by the adoption of the Comprehensive Africa Agriculture Development Programme (CAADP). This priority task is obviously complex and multifaceted. One thing is clear: huge investments in vital infrastructure will be needed, and new inputs and innovative technologies have to be introduced on a massive scale in order to improve productivity, reduce poverty and raise Africa's competitiveness in world markets. The extent to which emerging countries such as Brazil, China and India can help the continent realise these objectives is a matter of great interest among African policy makers, non-governmental organisations (NGOs) and farmers' organisations. The three emerging countries, besides being able to share their respective experiences in transforming their backward agriculture, can also become a source of technology, skills and finance to build the critical infrastructure that African agriculture needs.

Needless to say, increased direct investment in African agriculture by foreign investors, particularly from emerging countries such as China, India and Brazil, has been the subject of much criticism from civil society organisations, since these investments are often erroneously equated with widespread land dispossession of local populations. While the land deals that African governments have signed with private investors from Europe, the Middle East and Asia must be interrogated carefully for their possible downstream impact on peasant farmers and pastoralist communities, it would be a mistake to dismiss the potential contributions of foreign direct investment for unleashing African agriculture, which in turn will promote industrialisation, social transformation and broad-based poverty reduction on the continent. The aim of this book, therefore, is to examine critically whether private and sovereign investments from China, India and Brazil create new opportunities for the transfer of appropriate farm technology, build local capacity and know-how, reverse the persistent productivity decline in agriculture, generate local employment, improve local living standards and ensure food security.

This book would not have been possible without the assistance and support of several benefactors who participated in the conference on South-South cooperation in agriculture organised jointly by the Nordic Africa Institute and the Centre for African Studies, Mumbai University,

in January 2011 in Mumbai. First and foremost, we acknowledge with gratitude the financial assistance extended by the Centre for African Studies in addition to three sponsors: the Ministry of External Affairs, Government of India; the Nordic Africa Institute; and the South–South Cooperation Unit of the United Nations Development Programme. They were extremely supportive of this venture and helped finance the attendance of several national and international delegates to the conference. Special thanks are due to Mr Kuruvila, deputy director at the World Trade Centre in Mumbai, for providing the venue for the meeting, logistical support and other encouragement. We also extend our thanks to Professor Aparajita Biswas and Dr Manendra Sahu, faculty members, the support staff and the students at the Centre for African Studies, which hosted the conference. At the Nordic Africa Institute, Uppsala, we would like to extend our appreciation to Nina Klinge-Nygård, Tania Berger, Ingrid Andersson, Annika Franklin and Sonja Johansson, who in one way or another were involved in providing logistical and other support for the Mumbai conference.

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*Fantu Cheru and Renu Modi, editors*  
*Stockholm and Mumbai*



# **Introduction: peasants, the state and foreign direct investment in African agriculture**

Fantu Cheru and Renu Modi

India, China and Brazil are striving to build their relationships with Africa in a spirit of South–South cooperation. One significant dimension of this engagement has been agriculture. The three countries have become an important source of finance, technology and infrastructure, critical for boosting the productivity of African agriculture, thereby increasing domestic food security and exports to world markets. Private enterprises and state-owned companies from the three emerging countries have started to invest in the agricultural sector of many African countries, ranging from agricultural inputs and irrigation services to farming, food processing and distribution. For China and India, however, concerns about their own domestic food security have been the main driving force for their growing engagement with African agriculture. With huge populations, growing urbanisation and a rising middle class in both countries, demand for food is expected to outstrip the capacity of local production due to diminishing arable land and serious water shortages for irrigation.

In turn, African governments have been willing to put at the disposal of foreign investors huge tracts of land for the purpose of growing commercially viable agricultural products, such as cut flowers, biofuel crops, cotton and some edible produce. These large-scale land investments by foreign investors have received mixed responses. Critical reports on the ‘bonanza’ reaped by foreign capital have appeared in the world media and on the websites of international organisations (Oakland Institute 2011a; 2011b; World Bank 2011a). Land rights advocacy groups have singled out investors from China, India and Brazil for criticism, alleging that their investments have resulted in unfair land acquisition, involuntary resettlement and environmental damage. They argue that small-scale farmers and pastoralists, who own land according to customary legal systems and cannot present to the authorities legally certified ownership documents, have been victimised by large-scale land acquisitions. Some of these charges are true in some instances, and the global attention they have drawn may be well deserved, given the image of Africa as a land of poverty and hunger.

The aim of this book, however, is to go beyond the current heated debate



on ‘land grabbing’ and to examine the status and potential contribution of sovereign and private investors from the three emerging countries to the transformation of African agriculture. A more evidence-based understanding of foreign firms, their current and planned African footprint, as well as the potential synergies in key African markets, would add value to the wider Africa-emerging countries discourse. No country has ever made the transition to industrialisation successfully without first developing its agricultural sector, and Africa certainly needs a radical transformation of its agriculture.

The contributors to this volume take the position that foreign direct investment (FDI) can become a catalyst for modernising Africa’s low-technology subsistence agriculture if it is placed within a broader national strategy on rural development that gives priority to improving the productivity of local farmers. A strong and effective development-oriented state can play a critical role in promoting fairer investment models structured to support local farmers while at the same time strengthening national technology, research and development and management capacities for pursuing efficient and sustainable agricultural development compatible with African realities. This could take the form of contract farming, whereby multinationals procure local produce, or through the extension of commercial farming hubs to enable communities to share in expensive large-scale infrastructure, such as irrigation systems. With proper regulation and state guidance, FDI can aid badly needed development rather than be exploitative.

This is not to suggest that FDI does no harm to local populations or the natural resource base, particularly in host countries with weak regulatory capacity and poor democratic governance. Much depends on local context, the investor’s track record, the terms of the lease and whether these reflect the free, prior and informed consent of local landholders, and the capacity of the host government to regulate and monitor projects. The issue of land rights is just one part of the bigger puzzle of what needs to be done to bring about a successful ‘agricultural revolution’ in Africa. It is for this reason that we take a second look at the issue with an open mind, and let the empirical evidence speak for itself.

While land rights should remain central to the discourse on African agriculture, it would be erroneous to dismiss or downplay the potential contribution of FDI to technology transfers, skills development and the financing of vital rural infrastructure, all of which are critical for the transformation of African agriculture and for strengthening local productive capacity and employment generation. FDI’s role in this field could be positive if such investments are handled properly from the start. Through detailed case studies from China, India and Brazil, the book draws lessons that can be applied to the African context.

### Neocolonialism or new opportunity?

Twenty or more years after the end of the Cold War, the debate on 'new imperialisms' and how monopoly capital influences, if not determines, the trajectory of Africa's development is back in the limelight. The renewed scholarly interest in the possible deleterious effect of neoliberal globalisation is prompted by two important developments: the scramble for African land by foreign investors, and the competing interpretations of the increasing engagement of emerging powers such as China and India with the African continent. While the debate about 'land grabbing' has primarily focused on the actions of foreign investors and their governments, little critical attention has been paid to the roles and responsibilities of African governments in facilitating large-scale land acquisitions in a non-transparent way and with little consultation with local communities. Therefore, terms such as 'neocolonialism' and 'land grabbing' are inaccurate for two main reasons. First, the land is acquired on long-term leases at the invitation and with the facilitation of host country governments. Second, it is too soon to rush to conclusions, as farming by the foreign investors has only just begun. Moreover, the land may well be unused or underutilised, given that only 14 per cent of Africa's 184 million hectares of arable land is under cultivation and 21 million hectares are in a state of 'accelerated degradation', according to the United Nations' Food and Agriculture Organization. Therefore, the impetus provided by FDI in agriculture might augur well for the continent. Needless to say, however, the media hype about land rights (or the pejorative term 'land grab'), important as it is, has deflected attention from the need to examine seriously the potential contribution of FDI to unlocking the continent's productive agricultural potential.

Land has always been central to the livelihoods of the majority of Africans, who are subsistence farmers. Since independence, there have been numerous efforts by African governments and donor institutions to improve rural livelihoods by increasing the productivity of African agriculture through investment in rural infrastructure and other key inputs, land tenure reforms and improved technology, but with disappointing results. These repeated failures are often attributed, wrongly, to the refusal by the peasantry to embrace modern technology, rather than to the inappropriateness of the models themselves. Steeped in a culture of 'blaming the victims' and a misguided belief in the magic of the marketplace, proponents of large-scale industrial farming fail to acknowledge the contribution of small-scale farmers in Africa to national development. Small-scale farmers can be as productive as commercial farmers if given the same level of support. As a consequence, rural development strategies throughout Africa, by and large, have mainly benefited local elites, middle-class farmers and their foreign partners, to the detriment of the small-scale farmers in whose name these strategies were implemented. With few exceptions, agrarian reforms in post-independence Africa have not created the

conditions for the 'emancipation' of the peasantry from exploitative patterns of production and accumulation.

The increasing engagement of foreign investors in African agriculture, particularly after the 2008 global food and energy crisis, has set off alarm bells as concern grows that the rush for more of Africa's productive land for food and biofuel production might result in the same disastrous mass displacement and super-exploitation of small-scale farmers and pastoralists that the policies of colonial and post-independence governments produced in earlier years. Growing peasant resistance in response to 'land leases' to private capital, the scale and speed of land acquisitions and the non-transparent nature of the deals warrants critical examination of the policies and strategies of African governments, and whether the expected windfall from such deals – technology transfer, employment, technical know-how and other transferrable lessons – has actually materialised.

Foreign investors and host country African governments proudly declare that the main objective of large-scale land leases is to increase the productivity of African agriculture through 'green revolution'-type interventions. These, it is argued, will enable host countries to achieve food security and export high-value agricultural products to generate badly needed foreign exchange. They further argue that global demand for food and agricultural commodities offers new opportunities for African farmers to earn more through expanded exports by putting into active production much of Africa's supposedly idle land.

It is not, therefore, surprising that in the aftermath of the 2008 global food and energy crisis, the quest for more African land for food and agro-fuel has accelerated on an unprecedented scale. The World Bank (2011a), the International Institute for Environment and Development (Cotula et al. 2009) and the Oakland Institute (2011a) have documented the scale of land leases around the world. An estimated 60 million hectares of land worldwide have been leased to foreign investors to grow either food for consumption in the investors' own countries or to produce agrofuels to offset the rising cost of oil. According to current reports, two-thirds of the land acquired was in Africa. It is difficult to ascertain the exact scale of these land deals since the actual documents are kept secret.

### **The glass is neither 'half full' nor 'half empty': the need for pragmatism**

Accumulation by dispossession has been a central feature of agrarian relations under colonial and postcolonial development strategies. The African peasantry has borne the negative consequences of the misguided and top-down rural development policies of post-independence governments as they attempted to 'mimic' the industrialisation experience of Western Europe and North America. This inherited ideology viewed peasant agriculture as backward

and traditional and sought to transform it in the image of Western mechanised farming, largely oriented towards the global market. It was believed that the modernisation of African agriculture, if successful, could serve as the foundation for the continent's industrialisation dream. In pursuing this strategy, millions of peasants were forcibly displaced from their traditional grazing areas to make way for export agriculture. With higher foreign exchange earnings from agricultural commodity exports, it was believed that both the security needs of African governments and their drive towards industrialisation could be achieved. On both counts, however, African governments failed miserably.

As Africa entered the 1980s, not only were economies in a shambles, but food production had declined and half the continent faced chronic famine as a result of bad weather and declining productivity. The failure of export-led agricultural development meant that African countries were unable to feed themselves, and the drawbacks of undue emphasis on commercial farming became increasingly clear as repeated famines claimed the lives of millions of people. Soon after, the narrative on African agriculture changed, with the emphasis shifting to the central role of small-scale farmers in achieving family food security. National governments, with the support of donors, changed course by directing policy towards these smallholder farmers.

Almost two decades later, both national governments and the very donors who supported the small-scale farmer strategy are having second thoughts. The 'modernisation craze' is back in the limelight. The global commodity crisis of 2007–08, during which there were severe shortages on the world food market accompanied by a dramatic rise in grain prices, provided the impetus for both private and sovereign investors to rush to so-called 'land-rich' countries in Africa and elsewhere to acquire land for growing food and biofuel crops for export. However, these large-scale acquisitions are contested on the grounds that they violate the land rights of local inhabitants and that the lease arrangements have been made without consulting them.

### **Scope of the book**

The book is divided into five sections. In the first, the approach to the research is elaborated, and the contemporary and historical debates on the role of foreign capital in Africa's agricultural development are explained. In Chapter 1, Fantu Cheru, Renu Modi and Sanusha Naidu outline the parameters that should be used to measure the contribution of FDI to host countries' development. They note that the exclusive focus on the role of foreign investors in land acquisitions misses or underestimates the potential of FDI to support technology transfers, skills development and asset creation. In Chapter 2, Sam Moyo provides a historical account of the role of foreign capital in Southern Africa, suggesting that it has been associated with what he refers to as 'accumulation by dispossession'. He warns that if African governments fail

to put in place appropriate checks and balances, FDI in African agriculture could perpetuate these disastrous results, namely the destruction of the livelihoods of millions of Africa's smallholder farmers and the unsustainable use of land and water resources.

The second section examines the scope and content of India's private and public sector engagement in African agriculture. It must be stated at the outset that the two Indian contributors present an analysis that in many ways mirrors the official views of the Indian government and the Indian private sector. In its public diplomacy, the government of India has tried to project itself as a 'rising power' whose time has come to shape global development in a positive direction, particularly in Africa and South Asia, through its aid, investment and technical assistance programmes. This posturing often does not pay sufficient attention to the more complex and controversial elements of Indian agriculture domestically and Indian investment abroad that have been raised convincingly by Dessalegn Rahmato and Rick Rowden in this volume.

In Chapter 3, India's former ambassador to Ethiopia, Gurjit Singh, outlines the policies and strategies of the government of India for strengthening economic relations with Africa, and discusses the instruments currently in place to assist Indian entrepreneurs in expanding their investments in Africa. Singh states that India has no ulterior motives other than to help African countries tackle the crisis in agriculture through aid, technical assistance and lines of credit to encourage Indian private sector operators to invest in Africa. This view is corroborated by Modi, who in Chapter 4 examines Indian private sector investments in African agriculture and the role the Export-Import Bank of India plays in financing such investments. Both authors present India as a 'rising power' committed to helping African countries escape poverty and underdevelopment, asserting that Indian private sector investment and official aid are helping African partner countries build the policy and institutional foundations necessary for reversing the productivity decline in agriculture, generate jobs, reduce poverty and ensure food security on the continent.

Beneath their invocation of the principles of mutual respect, mutual benefits and non-interference as central elements in India-Africa relations, however, others might argue that their analysis contains elements of the same patronising views often associated with Western donors, who claim that only outsiders can put the African continent on a transformative path. In Chapter 4, Modi acknowledges briefly the chronic problem of widespread hunger and malnutrition, the large number of farmer suicides, the deeply alarming decline of the water table and other environmental problems that characterise Indian agriculture today. A detailed discussion of the shortcomings of the agricultural sector in India has not been undertaken, as it is beyond the scope of the present project. Nevertheless, both Singh and Modi present evidence to confirm the commercial nature of contemporary India-Africa relations in

the field of agriculture, which has the potential to produce the same destructive environmental and social outcomes if African governments do not take precautionary measures.

In fact, the governments of Africa have the advantage of hindsight. They can avoid the massive social and environmental pitfalls of the green revolution in particular and of the Indian agricultural sector in general. While incorporating the success stories of the green revolution, safeguards need to be established and preventive measures need to be adopted by countries in Africa to deal with the adverse consequences that have been faced by the Indian agricultural sector. Section two of the book aims to provide a comprehensive picture of India's engagement in the agricultural sector of Africa and therefore includes various versions of the same story.

In pursuance of this objective, the first two chapters of this segment provide important insight into the Indian government's and the corporate sector's perspectives vis-à-vis investments in African agriculture. The upbeat and positive assessment presented by Singh and Modi on India's engagement in African agriculture is balanced by Rahmato (Chapter 5) and Rowden (Chapter 6), who critically examine large-scale land acquisition by Indian companies from a land rights perspective. Focusing on an Indian company, Karuturi Global, and its acquisition of 300,000 hectares of land in the Gambella region of Ethiopia, Rahmato examines the consequences of a shift from small-scale to large-scale and foreign-dominated production for agrarian relations in Ethiopia as well as for the environment and for biodiversity. In Chapter 6, Rowden, based on a content analysis of the lease agreements of five Indian investors in Ethiopia, arrives at the same conclusion. Without passing judgement, both contributors point out one critical challenge: how to reconcile the need for more private investment in land with the urgent need to protect the land rights of small-scale farmers and pastoralists. The editors address this strategic challenge in the concluding chapter.

Brazil's strategy to transform African agriculture is the focus of section three. In Chapter 7, Thomas Cooper Patriota and Francesco Maria Pierri examine the increasing commercial ties, including FDI, between Brazilian multinationals and a number of African countries. While current initiatives are small compared with Chinese and Indian investments in Africa, Brazil pursues more structured and multi-sectoral cooperation in agriculture and sustainable rural development that could potentially bring enormous benefit to Africa. These initiatives include a more systematic approach to sharing tropical agricultural technologies provided through Embrapa (Empresa Brasileira de Pesquisa Agropecuária), a state-owned company credited with Brazil's agricultural boom in the last decade; a concessional financing platform for importing Brazilian farm machinery; and a knowledge-sharing platform that offers about four decades of Embrapa expertise aimed at poor smallholder farmers. In Chapter 8, Kai

Thaler examines Brazil's investment in the production of biofuel feedstock in Mozambique and criticises the prioritisation of biofuel production in a country where the vast majority of the population experiences high levels of food insecurity. He questions whether the emphasis on biofuel production can be reconciled with enhancing food security and furthering the government's goal of poverty reduction.

In Chapter 9, Alexandra Arkhangelskaya and Albert Khamatshin discuss the contributions made to agriculture in Africa through IBSA, a trilateral forum comprising India, Brazil and South Africa. Although the resources of IBSA are minuscule, it complements the bilateral strategies of Brazil and India to improve agricultural productivity in order to reduce poverty and enhance food security in the least developed countries. One such country is Guinea-Bissau, where targeted projects are increasing the cultivation of rice through improved lowland rehabilitation, water management and animal husbandry.

The fourth section focuses exclusively on China's engagement with African agriculture within the framework of the Forum on China–Africa Cooperation (FOCAC). In Chapter 10, Simon Freemantle and Jeremy Stevens describe the domestic dimensions of China's growing interest in investing in the agricultural sector in Africa and other developing regions. The authors note that China's role in land acquisition in Africa has so far been minimal in comparison with India and Middle Eastern investors. Indeed, the authors point out that China's 20-year food security strategy, unveiled in 2008 by the National Development and Reform Commission, did not include foreign land acquisition as a pivotal feature, with the exception of soya bean production in Brazil. In future, however, foreign land acquisitions will certainly become part and parcel of China's food security strategy for two compelling reasons. With increasing incomes among average Chinese consumers, demand for agricultural commodities is likely to grow during the coming decades and this demand cannot be met through domestic production alone because of diminishing local resources, principally arable land and irrigable water.

In Chapter 11, Xiuli Xu and Xiaoyun Li, professors at the China Agricultural University, discuss in detail China's post-1979 agriculture-led development strategy that is credited with the country's unprecedented scale of poverty reduction over the past 25 years. The authors persuasively argue that China's success was the outcome of strong incentives provided by government through land tenure reform and pricing policies, coupled with major public investment in infrastructure (roads, irrigation and energy), research into seeds and soils, greatly expanded fertiliser production and use, farmer education and, crucially, off-farm employment through local enterprise development. Central to the Chinese approach, from which Africa can learn much, is the existence of a strong, effective development state with a long-term vision. The authors conclude that China's approach has been pragmatic and is based on learn-

ing from others, adapting to local circumstances, scaling up what works and abandoning unsuccessful experiments, a lesson that is instructive for African countries.

In the final chapter (Chapter 12), the editors, based on the evidence presented by the contributors, conclude that the actual impact of Chinese, Indian and Brazilian private and sovereign investment in African agriculture has been positive in the short and medium term thanks to enhanced technological transfers, skills development, provision of infrastructure and finance, and the creation of the conditions needed to unleash Africa's agricultural productivity. At the same time, the editors highlight two important problems that will ultimately determine the effectiveness of the current approach to South-South agricultural cooperation. The first relates to the sensitive issue of the land rights of local communities affected by large-scale land investments. The second concerns the downstream effect of technology and infrastructure designed for commercial agriculture on the surrounding communities, and how to ensure that smallholders also benefit from these costly rural infrastructure networks.

The issue of land rights goes beyond policies on agricultural development. It is part and parcel of the unfinished governance agenda in Africa. That said, a more transparent governance framework on property relations that protects the land rights of local communities should be a precondition for attracting FDI into the agricultural sector. This would entail the development of policies that delineate the roles and responsibilities of the state, the peasantry and domestic and foreign capital in a consultative and transparent way. The editors question the relevance and legitimacy of international efforts to introduce voluntary guidelines on FDI in the agricultural sector by arguing that voluntary guidelines are poor substitutes for strong and transparent national laws and regulations governing the operation of FDI in African agriculture. They insist that a robust and nationally owned institutional framework governing such FDI in terms of technology transfer, skills development, asset creation and compliance with international labour and environmental standards is a necessary precondition for monitoring compliance by foreign and domestic investors and for evaluating their overall contribution to the transformation of African agriculture.

### **Changing course: harnessing foreign direct investment to transform African agriculture**

There is no doubt that Africa's agriculture is in need of major transformation, given the sector's contribution to the growth of gross domestic product, employment and livelihoods. This urgent need has been acknowledged by the Comprehensive Africa Agriculture Development Programme of the African Union, especially in the current context of global food price volatility and of low food stocks, both of which have had a particular impact on the marginalised



and the poor. Agricultural research, supportive rural infrastructure, adequate development finance, skilled personnel and strong institutions have remained relatively underdeveloped. National budgets devoted to the agricultural sector remain low and few African countries have a coherent strategy to mobilise resources domestically. Given the urgency of raising agricultural productivity on the continent, attracting FDI should be a priority for African governments, since such investment can play a critical role in addressing longstanding constraints.

At the same time, initial efforts by a handful of African governments to attract FDI to the agricultural sector have met with scepticism. Activist civil society organisations point out that FDI in African agriculture has largely contributed to the displacement of subsistence farmers and pastoralists from the land they depend on and that most of these investments are directed at producing non-food items, such as cut flowers and biofuel crops, and not necessarily food for local consumption (see Chapter 6). To some degree, these criticisms have made important contributions by highlighting the issue of land rights and the lack of transparency in decision making in large-scale land deals. Where the critics go wrong, however, is in apportioning blame to the foreign investors. One of the major problems has been the failure of host governments to take decisions on land leases in light of a broader strategy on rural development. While corruption remains a problem, many African countries lack the technical and human resources to monitor and regulate large-scale agricultural projects.

Not all land deals, whether with foreign or domestic investors, are implicated in the dispossession and wanton destruction of the livelihoods of local communities. If undertaken with proper due diligence, large-scale land investments can create opportunities in food-deficit African countries. Such investments could improve the local infrastructure and economy, ensure technology transfers and provide long-term employment. The real focus of the critics should be on the role and responsibilities of national governments in establishing the ground rules for FDI in African agriculture, and in ensuring that they get the best out of any investment deals. Africa's need for development finance, technology and human capital development is huge and cannot be met with local resources alone. Attracting FDI to the agricultural sector is, therefore, critical, as long as it is within the context of a long-term national development vision.

The exclusive focus on 'land rights' or 'land grab' unfortunately leaves little room for a thorough evaluation of the potential contribution of FDI to asset creation through capacity building and skills development in farming, enhanced transfers of appropriate technology and the provision of finance for infrastructure development – all of which are critical to a successful agrarian revolution in Africa. Moreover, pejoratively equating all FDI in agriculture with 'land grabbing' could potentially stop investment altogether as potential foreign

investors try to avoid reputational and financial risks. The role of a vigilant civil society and the media is indispensable in holding national governments accountable so that the benefits of international investments are channelled to strengthen the productivity of small-scale farmers, promote value addition through technology transfer and innovation, expand opportunities for non-farm employment by diversifying the rural economy, and improve competitiveness and economic transformation. This approach demands high and sustained levels of investment in key public infrastructure (such as rural roads and irrigation), in agricultural research and new technology, and in input-related industries in areas such as fertilisers and seeds – all of which can be provided sufficiently by China, India and Brazil.



## PART I **Overview**



# **I | Catalysing an agricultural revolution in Africa: what role for foreign direct investment?**

Fantu Cheru, Renu Modi and Sanusha Naidu

## **Introduction**

Today, food insecurity is one of the most urgent problems facing sub-Saharan Africa, where more than half the population is dependent on subsistence farming as their only source of livelihood. However, it must be stated at the outset that the countries of Africa are diverse and asymmetrical in terms of area, population, and endowment of natural resources such as cultivable land and water, and therefore the agricultural potential of different countries varies. Despite this, this chapter attempts to focus on general trends in the agricultural sector, and, most notably, on trends in subsistence agriculture. Subsistence farming is under massive threat from population growth, land scarcity and worsening ecological degradation as a result of climate change. Continued underinvestment by national governments in agricultural research, technology and infrastructure further aggravates the productivity decline in African agriculture. Consequently, Africa is one of the regions in the world where a 'green revolution' in agriculture has failed to materialise, despite the importance of agriculture to the majority of Africans.

Since the early 2000s in particular, however, the issue of transforming African agriculture has featured prominently on the policy agenda of national governments, the African Union and external development partners. First, there is a growing resolve by African leaders to take decisive steps to address the many obstacles to growth and structural change in the agricultural sector and the larger economy as a whole. The Comprehensive Africa Agriculture Development Programme (CAADP), which was formulated in 2003, is now the basic reference point for African governments for improving agricultural productivity and reducing hunger on the continent (African Union 2003; 2006).

Second, there has also been increasing interest from Africa's official development partners, philanthropic foundations and private international investors in reversing Africa's productivity decline in agriculture, ensuring food security and using agricultural transformation as the foundation for Africa's industrialisation. Emerging from the dialogue process with Africa that began with the Kananaskis Group of Eight (G8) summit in 2002, the Global Food Security Initiative was launched at the L'Aquila G8 summit in 2009, with initial pledges

of US\$22 billion over the two following years. Subsequently, the Group of Twenty (G20) initiated a trust fund, the Global Agriculture and Food Security Program (GAFSP), administered by the World Bank, to support public and private sector agricultural investments in Africa in order to operationalise the L'Aquila Food Security Initiative. So far, the GAFSP has allocated a total of US\$223 million to CAADP-aligned investment programmes in Ethiopia, Niger, Rwanda, Togo and Sierra Leone. This support is being tracked to ensure that the overall effort is optimised and the momentum is sustained.

In addition to the collective initiatives by G8 members, many countries are increasing their bilateral support for the agricultural sector in Africa. The current US administration under President Obama has scaled up assistance to African agriculture through its Feed the Future programme, while Japan is undertaking a major reorientation of its aid from Asia to Africa, with agriculture, and particularly rice technology, a major element. The traditional Western development partners are now joined by emerging countries such as Brazil, India and China, which are increasingly engaged in the development of African agriculture. Each of these new partners has a perceived comparative advantage: China in infrastructure development and rural-based special economic zones; India in green revolution and skill-intensive learning in agriculture; and Brazil in high-technology farming and agro-processing coupled with social protection measures to combat food insecurity and poverty.

CAADP has also shown considerable potential to catalyse and leverage partnerships with the private sector. The activity of the African Agricultural Growth and Investment Task Force, in which the African Union Commission (AUC) plays a leading role, is a case in point. The task force is linked to the Alliance for a Green Revolution in Africa, headed by former UN Secretary-General Kofi Annan, and the New Vision for Agriculture initiative of the World Economic Forum, and its aim is to expand partnerships, catalyse investment and integrate best practices in international private sector support for agriculture in Africa. These private sector and philanthropic initiatives are leading the way in transforming smallholder farming through the application of yield-enhancing technology and through improved provision of vital infrastructure such as roads. The AUC's engagement with this task force has been informed by the need to broaden the mobilisation of investment resources for CAADP-aligned agricultural plans, programmes and projects.

One particular development in recent years has been the increasing presence in the African agricultural sector of foreign investors from the emerging countries of Asia and the Middle East. With the rapid economic turnaround of the continent since the early 2000s, foreign direct investment (FDI) from non-Western countries, particularly from Asia, has been growing steadily: China, India and Brazil are forging ahead in developing economic relationships with Africa in order to exploit its untapped strategic resources such as oil and gas

and to capture the growing African consumer market. This new interest in Africa by investors from emerging economies also includes gaining access to Africa's ample arable land to grow food as well as produce biofuel. The scramble for African land intensified particularly after the global food and energy crisis of 2008, when prices for basic food and energy skyrocketed. Although some critics from civil society organisations have characterised this as 'land grabbing' and a new form of neocolonialism, such characterisations are too simplistic and overlook the potential catalytic role of FDI in transforming African agriculture within a transparent policy regime and institutional framework that take into consideration the interests of local communities.

The existing literature on the impact of FDI on food security offers contradictory evidence. While the proponents of FDI take the position that FDI can help as a catalyst for increased agricultural productivity (Mihalache-O'Keef and Li 2011) in food deficit countries, others suggest that FDI penetration can lead to food insecurity by concentrating production on export crops and agrofuels, and accentuating the process of land alienation on a wider scale (Shiva and Bedi 2002; Oakland Institute 2011a; Matondi et al. 2011).

The aim of this book is to evaluate the extent to which FDI from China, India and Brazil is contributing to the transfer of modern agricultural technology to Africa, improving rural infrastructure such as roads and irrigation, building indigenous research and knowledge capacity in modern agriculture, and helping African host governments overcome the financing gap through increased access to finance (both public and private) in order to enable them to invest in strategic areas and unlock the productive potential of African agriculture. In the 'framework of cooperation' agreements signed separately between African heads of state and the leadership of China (under the Forum on China–Africa Cooperation or FOCAC process), India (under the India–Africa Forum Summit – IAFS-I and IAFS-II) and Brazil (under the India, Brazil and South Africa or IBSA umbrella), cooperation in agriculture has been assigned a prominent role. By focusing on the four vectors of finance, technology, infrastructure and know-how, this book assesses the actual contributions of FDI to the modernisation of African agriculture. In so doing, it takes a less polarised approach to foreign investments in Africa's agriculture.

### **Transforming African agriculture: new opportunities**

CAADP is the basic continental framework guiding the process of agricultural development in Africa. As noted in Box 1.1 below, CAADP focuses on four 'pillars' as well as recognising the importance of addressing a range of cross-cutting issues and of integrating livestock, fisheries and forestry into the agricultural planning processes. Among the many priority issues identified by CAADP for transforming African agriculture, we highlight four interventions that could unlock the agricultural sector's potential.



### **Box 1.1 CAADP priorities**

*Pillar 1:* Extending the area under sustainable land management and reliable water control systems.

*Pillar 2:* Improving rural infrastructure and trade-related capacities for market access.

*Pillar 3:* Increasing food supply, reducing hunger and improving responses to food emergency crises.

*Pillar 4:* Improving agriculture research, technology dissemination and adoption.

*Cross-cutting issue 1:* Capacity strengthening for agriculture and agribusiness; academic and professional training.

*Cross-cutting issue 2:* Information for agricultural strategy formulation and implementation.

*Companion document:* Integrating livestock, forestry and fisheries subsectors into CAADP.

*Increasing land under cultivation (Pillar 1)* It is estimated that 60 per cent of cultivable land in Africa is not under production. This provides considerable scope for increasing agricultural production, both for staples as well as for exports (McKinsey Global Institute 2010; UNECA 2009a). Instituting a radical land reform programme, starting with a comprehensive review of archaic tenure systems and allowing for different types of property ownership and use, is an important first step. Land tenure reform either can be initiated from the top down or, in other cases, could be led from the bottom up through small-scale experiments at the local level. By utilising diverse approaches that take into account local conditions, huge tracts of unused land could be brought under production. Of particular importance in the African context is the need to increase irrigated land and to rehabilitate large areas of degraded land through soil and water conservation measures.

Besides the need to transfer new technology to the peasant sector, new modalities of ownership and land use would help to attract FDI in agriculture through joint land-lease ventures. These land-lease arrangements should not be permitted if they displace communities that are already using the land for production (African Union/AfDB/UNECA 2010).

*Linking farmers to markets through innovation in the value chain (Pillar 2)* While the majority of African farmers produce for subsistence, considerable scope exists to help them begin more lucrative farming by producing high-value products for local, regional and global markets. This could be done

in three ways. First, there is capacity building for farmers – by providing extension services and new demonstration centres – and expanding access to credit, seeds, fertilisers and affordable technology to enable them to produce high-value products. The second is to link the farmers to the market through regional value chains (World Bank 2007). This requires the development of small- and medium-scale rural industries such as agro-processing, packaging, agricultural input, cold storage, marketing, clearing, freight handling at ports and quality assurance and certification, all of which are vital in gaining access to global and regional markets. The third is by attracting FDI in agriculture, with well-defined upstream and downstream links that spawn new manufacturing and service sectors related to agriculture (Gibbon and Ponte 2005; World Bank 2007: 118–34; UNECA 2009a).

*Increasing yields of staple foods (Pillar 3)* High rates of population growth, increasing urbanisation and declining agricultural output due to climate change, coupled with high global food prices, are putting pressure on governments to increase yields of staple foods (NEPAD 2009). This is particularly challenging for Africa, where basic investment in critical infrastructure, technology and agricultural research is inadequate, and the use of yield-enhancing practices (fertilisers and pesticides, mechanisation and irrigation) is very low compared with the situation in other developing regions (UNECA 2009a). As an example, on average African farmers use only 22 kilograms of fertiliser per hectare of arable land (10 kilograms per hectare in sub-Saharan Africa). This is only 15 per cent (or 7 per cent) of the 144 kilograms per hectare used in Asia. The number of tractors per 1,000 hectares of arable land is three times greater in Asia and eight times greater in Latin America than in Africa.

An emphasis on food production for local consumption is required, given the scale of poverty and hunger that afflict the continent, the ever-rising cost of basic foods and Africa's persistent dependence on imported food and food aid, which tends to undermine the productivity of local farmers. In pursuing this strategy, a balanced and pragmatic approach is needed in terms of interventions to capture export markets for cash crops without sacrificing national food security in staple foods. But as African economies become more diversified and more people move out of agriculture into the manufacturing sector, a more open-minded approach will be needed on agricultural development.

*Investing more in research and technology (Pillar 4)* A critical dimension for transforming African agriculture is agricultural research. Increasing yields, adding value to agricultural products and raising the efficiency of resource use – from water to land – will not happen without determined efforts to devote adequate resources to research and technological innovation. In a nutshell, what is needed in Africa is more investment in research and development,

science and technology, and expanded intervention to promote yield-enhancing practices, particularly those aimed at raising the productivity of small-scale farmers, given the strong multiplier effect of the agricultural sector (UNECA 2009a: 134).

To date, however, actual expenditure on agriculture fell far short of the 10 per cent of public expenditure agreed at the 2003 Maputo summit. According to the New Partnership for Africa's Development (NEPAD), only four African countries allocate more than 10 per cent of their national expenditure to agricultural development. Many countries hardly reach 4 per cent of gross domestic product (GDP) and have to depend on official development assistance for funding agriculture and other sectors (Benin et al. 2010). The share of resources allocated to research and technology as a proportion of overall agricultural budgets is generally too low, despite the fact that the rate of economic return of agricultural research is very high (Ehui and Tsigas 2006). Public expenditure on agricultural research as percentage of agricultural GDP is considered adequate at 2 per cent or more. For Africa, the figure stands at 0.7 per cent (UNECA 2009a: 124).

Investment in agricultural research is meaningless unless accompanied by appropriate institutional arrangements to transmit research results directly to farmers. Experience from countries that underwent a successful green revolution shows that the provision of science and technology to farmers via research institutes and demonstration centres closely related to farm-level practice is critical in unleashing the potential of small-scale farmers, and these institutions should be developed along with agricultural extension centres to disseminate knowledge (Zhang et al. 2010; Dollar 2008; Gulati and Fan 2007; OECD-DAC/IPRCC 2010).

In the case of Africa, however, the problem is compounded by the continuing disconnect between agricultural universities and the farmers on the land who lack the knowledge and technology required to improve agricultural productivity and to penetrate niche markets for high-value agricultural products. As Calestous Juma (2011) rightly points out, the challenges facing African agriculture require fundamental changes to the way in which universities train their students. To date, most African universities do not specifically train agriculture students to work on farms in the same way as medical schools train students to work in hospitals. The traditional separation between research and teaching, with the former being carried out in national agricultural research institutes (NARIs) and the latter in universities, has produced a situation where scientific and technical knowledge is not transmitted from research facilities through a network of demonstration centres to the farms that need the information the most.

The challenge is how to strengthen the educational, commercialisation and extension functions of the NARIs through innovative institutional arrange-

ments. It is imperative that universities improve their curricula to make them relevant to the communities in which they are located so that they serve as critical hubs in local innovation systems or clusters. For example, innovation universities located near coffee production sites should develop expertise in the entire value chain of the industry.

### **Additional dimensions to consider**

Though not explicitly stated in the CAADP priorities, three important and complementary topics must be addressed in the agricultural transformation of Africa. These are discussed below.

*Reaching rural areas with financial services* The demand for financial services in rural Africa is huge, but in many cases financial service providers are too few or non-existent. In countries where microfinance institutions exist, their coverage is limited due to either insufficient capital or the high collateral requirements that discourage potential borrowers. Moreover, microfinance institutions focus more on lending and less on encouraging the rural population to save more. The underdevelopment of the rural banking sector has become a major impediment to mobilising savings and to providing essential financial services to rural economic agents.

A priority for African governments in the coming decades should be the broadening of financial intervention in rural areas. This could be achieved by liberalising the financial and banking sectors and by encouraging both competition among different providers, from credit unions and savings and loan associations to domestic commercial banks, and the spread of banking services across the country. The National Microfinance Bank in Tanzania is a good example of an institution that is trying to reach clients previously considered unreachable.

*Investing in climate change adaptation and mitigation* Efforts to unleash the potential of African agriculture would be incomplete if insufficient attention were paid to mitigating the ill effects of climate change. If it goes unchecked, climate change will alter rainfall patterns and will decrease the area suitable for agriculture, the length of growing seasons and crop yield potential, while potentially forcing millions to migrate to urban areas (Low 2005). These development traps will further enmesh African countries in the already crippling downward cycle of poverty, disease and food insecurity (World Bank 2007: 200–1).

While African countries will suffer most from climate change, the crisis also presents the continent with new opportunities to profit from its vast carbon sinks, leapfrog dirty technologies and embark on a path of low-carbon growth and clean development. This will obviously require African governments to

take decisive and proactive steps to mainstream climate change adaptation and mitigation policies in development planning practices, and to institute supportive policies and incentives to assist the private sector and ordinary citizens in adopting clean technologies and production practices in order to build climate-resilient economies and ways of life.

A continental-level initiative exists for coordinating climate change-related actions at the Regional Economic Community and AU member state levels. The AU-NEPAD Agriculture Climate Change Adaptation-Mitigation Framework is a response to calls by the thirteenth AU summit as part of its mandate to coordinate and oversee implementation of CAADP as a mechanism for agricultural development and food security in Africa. The framework aims to support national and regional strategies and programmes for integrating climate change concerns into agricultural development objectives. It also provides important pointers for engaging AU-NEPAD agencies in supporting the implementation of agriculture-based climate change adaptation and mitigation programmes in Africa.

*Promoting agriculture-led rural industrialisation* On its own, productivity growth in agriculture will not be able to solve the problem of chronic food insecurity, underemployment and poverty in rural areas. The agricultural sector has to be used as a basis for wider African industrialisation (African Union 2007). This requires a wide range of innovative experiments involving production, modes of property ownership, financing, infrastructure, research, institutional and governance arrangements and so on to harness local productive resources and diversify the economy (Fan et al. 2010; Li et al. 2012). This is arguably an even greater challenge for development than the technological rehabilitation of agriculture itself.

Agriculture-led rural industrialisation can enhance the dynamism of rural economies, provide non-farm employment in industrial clusters engaged in value-added packaging, processing and shipping, and produce the vital input and services agriculture needs to become more efficient and productive. The designation of selected regions and ecological zones as nodes of innovation for agriculture-based rural industrialisation can produce local and regional corollaries by increasing access to dynamic markets and strengthening links between farmers, industry and services (World Bank 2007: 202–21).

In this regard, African countries should leverage the comparative advantages of China, India and Brazil, which have extensive experience of the green revolution and of agriculture-led rural industrialisation. Africa's needs and potential in agriculture, especially in terms of food security and employment, mean that China, India and Brazil are well placed to help the continent move forward (AEO 2010). In the final analysis, the full realisation of the broad objectives of CAADP will require deliberate and hands-on state action on many fronts:

broad-based institutional and administrative reforms; competition policy; and financial, technological and human resources development policies.

### **Progress in the implementation of CAADP**

Implementation of the CAADP framework is in its early stages, with some 40 countries currently at different phases in the process, ranging from formally recognising CAADP as having value to efforts to formulate CAADP-aligned programmes and projects for implementation. As of September 2011, 27 countries have completed the CAADP round-table process and signed their compacts. Of these, some 20 have developed CAADP-based agriculture and food security investment plans and have been subjected to technical reviews led by the AUC and the National Peace Corps Association. To date, 14 countries have convened CAADP business meetings to showcase the outcomes of the independent technical reviews of CAADP-aligned investment plans and to garner domestic support and international assistance. These activities are considered as demonstrating strong commitment by governments, the private sector, civil society, farmers and development partners to a common vision and strategy for the agricultural sector. The Economic Community of West African States has also signed its regional compact (African Union 2011; Benin et al. 2010).

Successful implementation of CAADP objectives will also depend on the ability of African states to mobilise development finance. In the Maputo Declaration on Agriculture and Food Security in Africa, adopted by AU heads of state and government in July 2003, African countries were urged to allocate 10 per cent of their national budgets to agriculture within five years. A recent assessment of progress in CAADP implementation, however, indicates that between six and ten countries have either reached or surpassed the 10 per cent GDP allocation to the agricultural sector, although several others have increased their budgetary allocation, and the average for Africa remains at 6 per cent (African Union and NEPAD 2012; Benin et al. 2010: 22). Most of the expected funding for CAADP-linked investments will depend on the contributions of development partners.

If African small-scale farmers are to improve their productivity significantly and develop a profitable niche in the agricultural value chain, the state must play an active supporting role by investing in agricultural research and extension, technological innovation, and a transport and communications network. It must also ensure the availability of credit and timely delivery of essential agricultural inputs (Chambers 1989: 20; UNECA 2009a; Nin-Pratt et al. 2009; Diao et al. 2008). In addition, government has an important role in providing, where necessary, sustainable price support mechanisms and in reforming land tenure systems to improve access to land and ensure security of tenure. Finally, it must develop a supportive rural administration and network of rural finance institutions to help farmers purchase tools and fertilisers.

Implementing the CAADP strategy will, therefore, require planned and sustained efforts spearheaded by state machinery in the agricultural and supporting sectors. While the state in Africa has been part of the problem, it would be wrong to underestimate its critical role in any effective rural development strategy (UNECA and AUC 2011; UNCTAD 2007a). Fostering the emergence of a responsible, development-oriented state with a political consensus that reaches across competitive elites and ethnicities is critical for pushing forward the economic transformation agenda (Fosu 2009; China–DAC Study Group 2011a).

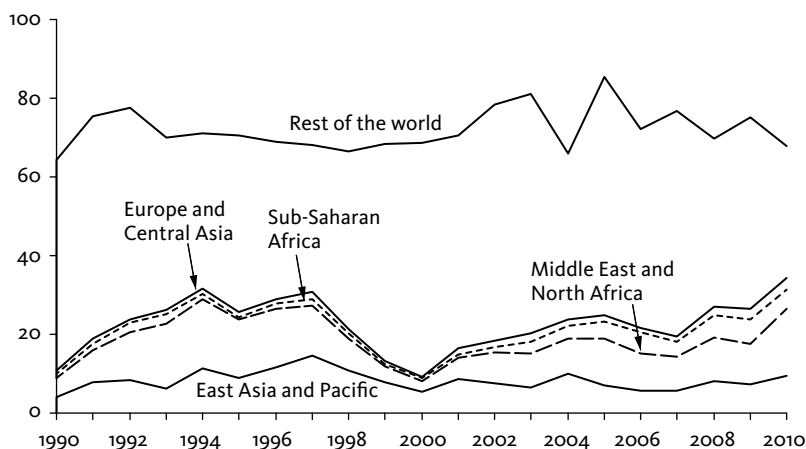
### **Attracting Southern FDI to develop productive potential**

FDI is an important source of private capital for developing countries. It has the potential to increase national income and promote economic growth and diversification by creating employment opportunities, enhancing the development of skills and facilitating technology transfers and access to foreign markets. It can also boost the competitiveness of local firms by creating capacity and spawning the development of new value-added manufacturing and service sectors (Ajayi 2006; UNCTAD 2005). Moreover, FDI can help in removing productivity and growth constraints such as poor infrastructure, technology and skills development in priority sectors. Both Malaysia and Mauritius have used FDI successfully in this way, using public investment in infrastructure, training and skills to attract FDI into goods and service sectors with a high value-added component.

Unfortunately, historically Africa has never been the most popular destination for FDI (see Figure 1.1), the bulk of which has continued to be directed towards Organisation for Economic Co-operation and Development countries (over 80 per cent of global FDI flows) and other successful developing regions. This is despite the fact that profitability from FDI is higher in Africa than in any other region of the world. Africa's unattractiveness in this regard has been ascribed to political instability, the lack of transparent regulatory and corporate governance regimes, poor infrastructure and a shortage of skilled labour.

These negative perceptions have been exaggerated and in many instances are generalisations that tend to obscure the continent's diversity of economic performance and the huge economic opportunities individual countries offer (UNCTAD 2007a). Since the crisis period of the 1980s and 1990s, the political landscape of Africa has been changing fast and economic policy making has improved significantly. One of the most important regional frameworks in this regard has been NEPAD, which has not only identified FDI as a crucial source of financing for the continent's development, but has also clearly articulated the steps, including governance reforms, needed to attract greater FDI flows to the continent (Bhattacharya et al. 1997; UNECA 2006).

FDI's contribution to structural transformation will largely depend on the host country having a vision of how FDI fits into its overall development



**1.1** Foreign direct investment inflows by region, 1990–2010 (%)

*Source:* Calculations made using the World Development Indicators/World Bank data on foreign direct investment, net inflows (balance of payments, current US\$)

strategy. While most African countries have made encouraging efforts to attract FDI and have elaborated more pro-business investment strategies, these efforts have been undercut by the poor state of the continent's human and physical infrastructure. The quality of both of these elements strongly influences FDI flows, as well as influencing the value added of the associated technology transfers (Saggi and Glass 2002). For example, large investments in education and training were partly responsible for the move by Singapore, China, Malaysia and Taiwan up the value-added 'ladder' from unskilled, labour-intensive manufacturing (Wade 2003; Haggard 1990; Chang 2003). In Africa, however, there is a disjuncture between the policy to attract FDI and the national strategy (or lack of it) on human capital and infrastructure development, as if the two priorities were mutually exclusive. This disjuncture has to be addressed as a condition for attracting FDI to the continent.

### **The role of FDI in African agriculture: overcoming the burden of history**

Historically, foreign investment in Africa's agricultural sector has been highly controversial, given the negative impact of settler colonialism and export-led agriculture. From Kenya to South Africa, African peasants were evicted from their lands to make way for export agriculture. The terrible memories of the colonial system linger. Consequently, it is difficult to have an honest discussion about the potential contributions of FDI to revitalising African agriculture, particularly when this involves investments by Chinese, Brazilian and Indian investors.



Recent analyses of FDI in African agriculture by advocacy groups and the international media have tried to implicate the emerging countries and Gulf states in ‘land grabbing’ and dispossession of whole communities from ancestral lands they cultivate to sustain their livelihoods. The problem with the current debate on ‘land grabbing’ is that it is full of sweeping generalisations based on anecdotal evidence and cursory reviews of draft agreements, without any genuine attempt to verify what is in the agreements through field visits or through structured dialogue with host governments, provincial authorities, individual farmers and foreign investors.

An additional shortcoming of these analyses has been that critical reporting has been disproportionately directed against foreign investors from China and India, while Western investors have not been labelled ‘neocolonialists’ and ‘land grabbers’. Ironically, while the number of private investors from Asia and the Middle East is growing, Western multinationals are still the largest investors in African agriculture. These observations aside, where our research uncovers cases of ‘land grabbing’, we will dig further to uncover the conditions under which ‘land grabbing’ has been permitted, the cost to the community and processes of redress, if any. At the same time, we cannot oppose the technological modernisation of agriculture and keep the African peasant in a cave.

It is important that we take a second look at the topic with an open mind and debate the merits and pitfalls of FDI in African agriculture, and the appropriate remedies and safeguards that host governments must put in place so that these investments make a positive contribution to Africa’s development. It must be stressed that the potential contributions of FDI to national development will depend on the capacity of the host government to negotiate well-informed and mutually beneficial outcomes.

### **Harnessing new partnerships with China, India and Brazil**

The increasing role of emerging countries such as India, China and Brazil in global trade, finance and investment has opened up new economic co-operation opportunities for Africa (Kaplinsky and Farooki 2010; Cheru and Obi 2010; Ajakaiye 2007). These new Southern powers have relatively large financial resources and the skills and technology that African countries need to address their development needs. They also have a growing middle class of consumers that Africa can supply with agricultural products and other consumer goods. At the same time, these new development partners see Africa as a growing market for their exports and a major provider of the natural resources they need to feed their growing industries. Moreover, these countries increasingly seek African support on global issues. Therefore, it is not surprising that African countries have scaled up their efforts to seize the opportunities presented by the growing economic influence of these emerging economic powers.

The growing relationship between these countries and Africa is a welcome

development given that Africa's current share of global merchandise trade is around 3 per cent and its share of global FDI flows about 5 per cent. This trade and investment gap is being filled by the growing engagement of Africa with these emerging powers. For example, the share of non-African developing countries in Africa's total merchandise trade increased from 8 per cent in 1980 to 29 per cent in 2008, and the share of inward FDI flows to the continent rose from an average of 12 per cent in 1995–99 to 16 per cent in 2000–08 (UNCTAD 2010: 1). Infrastructure is one area where Africa's new development partners, particularly China, are making significant contributions. This has had a very visible and tangible impact on productivity in agriculture and services. Besides China, India, Turkey, South Korea and many Gulf states are making significant investments in agriculture and infrastructure.

As the list of countries involved in Africa's agricultural development grows, it is important to ensure that CAADP serves as a framework to guide South–South cooperation so that any engagement is consistent with the region's development needs. The AUC and the sub-regional economic communities need to be more active in setting the agenda and ensuring the coherence of policies with regional plans.

The real impact of South–South cooperation on African agriculture will ultimately depend on the ability of African countries to maximise the benefits and minimise potential risks through well-thought-out national and regional strategic measures. The benefits of South–South cooperation will accrue only to those countries that have taken proactive steps to exploit the complementarities between trade, investment and official flows with the emerging Southern economic powers. Strategic engagement should be decided on the basis of how trade, investment and development assistance support African national interests in terms of promoting economic growth and structural change.

### **China, India and Brazil in African agriculture: an overview**

South–South cooperation in agriculture with emerging countries offers real opportunities for the transfer of the policy experience, technologies and finance necessary to boost African agricultural productivity and to level the playing field for new investment and market opportunities. Indeed, such cooperation could be expanded into a truly sustainable green revolution in Africa if managed strategically (Juma 2011; UNCTAD 2009). Through increased access to finance, technology, skills, research and development, African countries could increase agricultural output to meet domestic food demand while developing an export niche in high-value products that would be a more predictable source of foreign exchange (UNCTAD 2009).

Already, several large developing countries are investing heavily in agriculture in a number of African countries, ranging from agricultural inputs and irrigation services to farming, food processing and distribution. The long

list of countries includes China, India, Brazil, Malaysia, Turkey, Indonesia, Egypt, South Africa and several Middle Eastern countries (United Nations 2010a; UNCTAD 2010: 20). These new development partners bring a commercial approach to cooperation, with agro-industry enterprises playing an important role by introducing management and technical know-how and high-tech seeds and other supplies. The agricultural cooperation programmes of all these assistance providers can help to harness commercial capacity in support of emerging African agricultural strategies.

The most notable actors are China, India and Brazil, which are expanding agricultural cooperation with Africa with a focus on transferring technologies that meet the real needs of small-scale farmers. There has been a strong focus on capacity building in water resource management and irrigation systems; combating agro-based diseases; sharing experience of storage and processing technologies; cooperating in livestock management, breeding technologies,

### **Box 1.2 Chinese support for African agriculture**

The Fourth FOCAC, held at Sharm el-Sheikh, Egypt (8 November 2009)

The commitments include:

*Climate change:* 100 clean energy projects for Africa covering solar power, biogas and small hydropower.

*Science and technology:* 100 joint demonstration projects on scientific and technological research to be carried out, with 100 African post-doctoral fellows to conduct scientific research in China.

*Financing capacity:* US\$10 billion in concessional loans to African countries to be provided, and a US\$1 billion special loan for small- and medium-sized African businesses to be set up.

*Trade:* Zero tariff for 95 per cent of the products from the least developed African countries that have diplomatic relations with China.

*Agriculture:* 20 agricultural technology demonstration centres to be built, 50 agricultural technology teams to be sent to Africa and 2,000 agricultural technology personnel to be trained.

*Medical care and health:* Medical equipment and anti-malarial medications worth RMB 500 million to be provided, with 300 doctors and nurses to be trained.

*Human resources development and education:* 50 China–Africa ‘friendship’ schools to be built.

*Cultural exchange:* A China–Africa joint research and exchange programme to be launched.

*Source:* Fourth FOCAC key commitments, [www.focac.org/eng](http://www.focac.org/eng).

meat processing and dairy development; fisheries and aquaculture; and enhancing cooperation between training and research institutes (IAFS 2008a; FOCAC 2006).

*China* Among the new Southern partners, China's engagement in Africa has been the most extensive. Agriculture has been a top priority in China–Africa economic cooperation, involving over 40 countries and over 200 projects. From the mid-1990s, China took an enterprise-based approach to its cooperation, and considers joint ventures, with ongoing Chinese involvement at the management and technical levels, the best way to ensure sustainability. Alongside the official programme, some Chinese emigrants, acting independently, have moved into farming and distribution to supply urban centres, as they have done historically in many other parts of the world. China has sent 10,000 agro-technicians to

TABLE 1.1 Chinese-aided agricultural technology: demonstration centres in Africa (2010)

Country	Major focus of the centre
Benin	Crop cultivation demonstration and farming technology training
Liberia	Rice and corn cultivation technology transfer, training, development of plant varieties
Uganda	Agriculture technology demonstration, technology transfer and training
Tanzania	Crop cultivation demonstration, development of improved plant varieties, training
Sudan	Crop cultivation and irrigation technology, demonstration and training
Mozambique	Soya bean and corn cultivation and processing, demonstration and training
Ethiopia	Horticultural plants cultivation and livestock farming technology, demonstration and training
Rwanda	Rice, juncao, mulberry cultivation, soil and water conservation, technology demonstration and training
Zambia	Agriculture technology demonstration and training
Zimbabwe	Corn cultivation technology transfer and training
South Africa	Research, technology demonstration and training on freshwater aquaculture
Togo	Research and training on agricultural technology
Cameroon	Research, technology demonstration and training on agricultural technology
Republic of Congo	Crop cultivation demonstration and training

Source: MOFCOM 2010: 16

TABLE 1.2 African countries receiving assistance under the FAO South–South Cooperation initiative

Host country	Implementation period	Number of agricultural experts and technicians
<i>Phase I</i>		
Ethiopia	1998–2004	56
Mauritania	1999–2006	32
Mali	2000–2003	9
Ghana	2000–2004	17
Nigeria	2003–2007	496
Sierra Leone	2007–2009	18
Gabon	2007–2009	34
<i>Phase II</i>		
Mauritania	2008	1
Nigeria	2009–2012	56
Malawi	2011–2013	18
Mali	2011–2013	17
Sierra Leone	2011–2013	19
<i>Total</i>		773

Source: Ministry of Agriculture of People's Republic of China 2011: 66

Africa to train local farmers and provide technical support (Chaponniere et al. 2010a; Cheru and Obi 2010).

There has been a strong focus in China–Africa cooperation on land management, breeding technologies, food security, agricultural machinery, agricultural processing and training Africans in practical agricultural technologies. China is already supporting the establishment of 20 agricultural technology demonstration centres in Africa, to be constructed and started by Chinese agro-industry enterprises. The centres will have support from the Chinese foreign aid budget for the first years, but the aim is to make them a sustainable part of a hybrid rice-based farming system in Africa, which would be helped by the centres by being connected to broader, related initiatives. Table 1.1 shows the main areas of focus of the demonstration centres in the various African countries.

In addition to its bilateral aid and technical cooperation programmes, China has been supporting African agriculture through the South–South Cooperation initiative under the auspices of the United Nations Food and Agriculture Organization's (FAO's) Special Programme for Food Security since 1996. By the end of October 2011, the Ministry of Agriculture of China had sent 865 agricultural experts and technicians to some 21 developing countries, of which 90 per cent were allocated to eight African countries (see Table 1.2) (Ministry of Agriculture of People's Republic of China 2011: 5).

China's strategy is to contribute to and participate in the growth of African agriculture for domestic food supplies, rather than to promote large-scale farming for China's food needs. Additional measures include stimulating Chinese businesses to increase investment in African agriculture and focusing on infrastructure development, the production of agricultural machinery and processing of agricultural produce in Africa.

*India* India, too, is engaged heavily in African agriculture through the first IAFS, launched in April 2008. This is aimed at reinforcing cooperation, especially through agricultural technology transfers appropriate to the needs of small-scale African farmers (IAFS 2008b). There is a convergence between Africa's requirement for finance and technical know-how and India's expertise based on its successful green revolution in the 1960s (see Chapter 4).

Against this backdrop, Africa sees India as a partner of choice and 'agriculture has been at the forefront of the recent transitions in India-Africa relations' (Ernst & Young 2011: 12). At the government-to-government level, cooperation in this sector has been spelled out at the IAFS II (in 2011) and at the annual Confederation of Indian Industry (CII) and Export-Import Bank of India (EXIM Bank) Africa conclaves held since 2005 (see Box 1.3 and Box 1.4). For example, at the March 2011 conclave, during the agriculture and capacity building session and several ensuing business-to-business meetings, ministry of agriculture personnel from Mozambique, Malawi and South Africa's Limpopo

### **Box 1.3 First India-Africa Forum Summit (2008)**

Key commitments in the Delhi Declaration of 8–9 April:

- 1 Increase in existing lines of credit to Africa from about US\$2 billion to US\$5.4 billion.
- 2 Duty-free tariff preference for the 34 least developed African countries. The scheme will cover 94 per cent of total tariff lines and products, such as cotton, cocoa, aluminium ore, copper ore, cashew nuts, cane sugar, clothing and non-industrial diamonds.
- 3 The doubling of trade from \$25 billion to \$50 billion by 2011.
- 4 A \$500 million budget allocation for capacity building and human resource development, expanding existing training programmes for African students and technocrats.
- 5 Support to Africa's regional integration efforts and financial support to the AU and NEPAD. This includes \$200 million in lines of credit to NEPAD.

*Source:* IAFS 2008a.

### **Box 1.4 Second India–Africa Forum Summit (2011)**

Key commitments in the Addis Ababa Declaration:

1. New initiatives that include financial flows from India to Africa in terms of grants, FDI and concessional loans to the agricultural sector.
2. A common position on climate change and support for combating drought and desertification in Africa, as well as support for Africa's 'Great Green Wall Project'.
3. Shared concern on issues relating to 'the global food, energy and financial crisis'.
4. Reiteration of the need to achieve the Millennium Development Goals by 2015 and to support NEPAD and CAADP.

*Source:* Ministry of External Affairs of India, Second India–Africa Summit 2011, Addis Ababa Declaration.

Province requested Indian expertise, investment and assistance to create a stock of quality seeds and technologies in their home contexts. Delegates also requested that India assist them in strengthening agricultural infrastructure, including irrigation and water management, and ancillary food processing to add value to agricultural products (Modi 2011: 70).

Indian companies such as Karuturi Global and Kirloskar have become major investors in Africa's agricultural sector. However, some of these investments have been controversial, including Karuturi Global's investment in the Gambella region of Ethiopia discussed in Chapter 6 (see also Chapter 5). India is also an active player in the interregional IBSA initiative for Africa, which established the IBSA Facility Fund for the Alleviation of Poverty and Hunger in Africa in 2003. South Africa, itself a leader on the continent in agricultural technology, is also a key player in the transfer of technologies to African countries (Arkhangelskaya 2010; IBSA 2006).

*Brazil* Within the context of IBSA, Brazil is actively involved in South–South cooperation in agricultural development. The establishment of Embrapa in Ghana points to a new phase in Brazil's engagement with African agriculture. Embrapa is a Brazilian agricultural research and training institution that has been a driving force in agricultural development at national, regional and international levels. Several African countries, including Ethiopia, Ghana, Benin, the Democratic Republic of Congo, Guinea and Kenya have signed technical cooperation agreements and have begun implementing joint projects with Embrapa. The Forum for Agricultural Research in Africa (FARA), which is

based in Ghana, engages in regular dialogue and joint research with Embrapa (see Chapter 7). Brazil has also provided technical assistance and technology transfers to the cotton sector in Benin, Burkina Faso, Chad and Mali (the so-called Cotton-4 countries) with the aim of increasing productivity. It is expected that, as a result, the incomes of producers will improve, jobs will be created and foreign exchange will be generated to purchase food and other essentials.

In addition, the Brazil–Africa Dialogue on Food Security, Fight against Hunger and Rural Development, which gathered more than 40 African ministers of agriculture in Brasília in 2010, agreed on the sharing of expertise on family farming policies, such as public purchase schemes linked to domestic food aid and school feeding programmes; concessional loans to import Brazilian farming machinery; and investment in and technology transfers for the production of biofuels on African soil (Government of the Federal Republic of Brazil 2010). Through these initiatives, including the programmes provided under the IBSA forum, Brazilian know-how could be crucial in unleashing Africa's agricultural potential, in terms of both increasing smallholder productivity and expanding large-scale export-oriented commercial farming (see Chapter 7).

*South–South cooperation in agriculture: the way forward* To conclude, China, India and Brazil are championing new technologies and production systems in Africa as the continent attempts to move from old resource-intensive production methods to the more efficient and effective use and management of natural resources (both land and water) in order to boost agricultural productivity. Tapping into these countries' vast knowledge and expertise should be a major priority for African states. At the same time, African states should develop appropriate land policy frameworks and guidelines to ensure that foreign investments do not compromise the land rights of local populations. Where land currently used by local communities is re-zoned for agribusiness development, the communities affected should be consulted and an appropriate mechanism for compensation and restitution should be put in place (African Union/AfDB/UNECA 2010).

### **Measuring the contribution of FDI to African agriculture: technology, finance, knowledge and know-how**

Unleashing the potential of African agriculture will undoubtedly require huge investments in agricultural research, extension, transport, communications and irrigation, as well as an enabling policy environment. In this connection, FDI from China, Brazil and India could play a catalytic role in modernising African agriculture through the diffusion of innovative technology, inputs, finance, knowledge and infrastructure. The net result could be that African countries are enabled to produce enough food for their citizens and to increase the production of high-value exports for local and international markets.



This book, therefore, aims to empirically assess the contribution of FDI to modernising African agriculture by overcoming the constraints set out in the following sections.

*Addressing the research and technology gap* With regard to innovation, African institutions of higher agricultural education, research and extension are poorly staffed, ill equipped and underfunded. Africa cannot resolve the interlocking problems impeding the continent's growth and development unless intellectual capital is nurtured and maintained and a predictable flow of resources is invested in universities and research institutions. At present, FARA is one of several institutions providing the knowledge component of CAADP via integrated national, regional and continental agricultural research systems. The key questions in this regard are listed below:

- In what ways do Brazil, China and India contribute to the strengthening of agricultural research and technological innovation in Africa?
- What kind of equipment and inputs (fertiliser, machines, etc.) could achieve an improvement in productivity per cultivator and per hectare?
- What contributions can Brazil, China and India make to enhance technological modernisation?

*Addressing the infrastructure gap* Poor infrastructure (roads, electricity, telecommunications and irrigation) has been identified as the biggest constraint on growth in many African countries. Average public investment in infrastructure in Africa is between 2 and 3 per cent of GDP. As a result, the rural landscape in Africa is still characterised by subsistence smallholdings, low levels of technology and weak knowledge-based agricultural systems. Given this state of affairs, the following questions need to be asked:

- To what extent is FDI from China, Brazil and India oriented to transforming rural infrastructure in Africa?
- Are the governments of the three emerging countries prepared to extend financial resources (in the form of loans and grants) to African countries to enable them to make the needed investments in infrastructure?
- How much of their technological expertise are emerging countries willing to share with African countries?

*Bridging the financing gap* The key to achieving CAADP's objectives is adequate financing. Huge obstacles stand in the way of mobilising external finance for the agricultural sector in Africa. Outside South Africa, few African countries can hope to attract large volumes of FDI to finance large-scale agriculture-oriented infrastructure development.

In this regard, the following questions are raised:

- What are the long-term prospects of African countries attracting public and private financing for the agricultural sector?
- What has been the particular role of government-supported financial institutions (export-import banks, the China–Africa Development Fund, the IBSA Facility Fund, etc.) in mobilising finance to support agricultural development in Africa?

### **Sharing experience on the institutional imperatives of an agricultural revolution**

China, India and Brazil have been successful in transforming their agricultural sectors in a relatively short 30-year period. Each of them adopted different approaches and institutional modalities to achieve modernisation. African countries can certainly draw many lessons from these approaches without having to adopt them in their entirety.

If we take China as an example, rural transformation required pragmatic, hands-on leadership from the top, supported by a goal-oriented and competent bureaucracy committed to building the country's unique strengths. This implied selectivity, institutional innovation at central and local levels, an emphasis on experimentation, and the piloting and promotion of public–private alliances to identify and address concrete constraints (Zhang et al. 2010; Bruce and Li 2009; Li et al. 2010). To borrow a line from Deng Xiaoping: 'It does not matter whether the cat is white [state-owned enterprises] or black [FDI or private] as long as it catches mice [increased output].' Pragmatism also implied flexibility in deploying limited human and financial resources where they were needed most, based on a thorough assessment of performance. The questions in this regard that are explored in this book are the following:

- Are there innovative best practices and institutional approaches from India, China and Brazil that can be tried in Africa to service smallholder farmers (for example, institutions for consolidating property rights; access to financial services; disseminating technological innovation; access to information)?
- What kinds of rural social administration (that is, organisation and utilisation of property; ground rents and agricultural wages; marketing, credit or producer cooperatives) can help movement in the desired direction, or obstruct it?
- What kinds of administration systems for trade and industry (state holdings; cooperatives; local and foreign private capital) may also help to promote agricultural progress?
- Are there lessons from the Chinese, Brazilian and Indian experience that African countries should avoid repeating?

As the implementation of CAADP moves forward, experimenting, piloting

and capturing best practices for wider application should be the *modus operandi*. Policy reforms should begin with modest and pragmatic interventions that bring together small-scale farmers, the state and markets so that they can work together to gradually unlock the potential of the agricultural sector. Experimentation and piloting can improve the likelihood of successful and sustainable reform and the elimination of policy options that could have potentially disastrous consequences (Hofman and Wu 2009; Ravallion 2009). Proper sequencing of programmes, along with the synchronisation of each programme intervention with other critical sectoral reforms (such as infrastructure, finance and human resources development), will be critical for achieving structural change in the agricultural sector. In this regard, policy makers must search for transferrable lessons from China, India and Brazil as they push forward with CAADP.

## **Conclusions**

An ambitious and comprehensive approach is needed to tackle the interlocking problems preventing an African green revolution in agriculture. This must involve the diversification of products and markets, the development of skills and human resources, the modernisation of technology and infrastructure, the re-engineering of business processes, the creation of incentives for small- and medium-scale farmers to grow and export, and the improvement of the investment climate to attract FDI that is compatible with an African-owned and African-driven development agenda.

Enhancing the FDI climate also entails wide-ranging government involvement: instituting sound and predictable economic policies in law; delivering adequate public services; and stamping out corruption and inefficiency. The legal system must uphold order, act as a check on government and protect property rights, human rights and contract rights. The financial system must promote household savings and channel them to productive enterprises. At the same time, we must recognise the challenges inherent in attracting and sustaining FDI flows.

As much as FDI is important to revitalising Africa's agricultural sector, it can also promote interstate rivalries, including competition between investor states that can lead to the politicisation of FDI in terms of which sectors are developed and whether it is aligned with national development priorities. Moreover, there is no guarantee that FDI promotes sustainable and environmentally sound agricultural practices (Mihalache-O'Keef and Li 2011).

The main lesson from China, India and Brazil is that Africa's green revolution should remain a state-driven project. Benefits from FDI can accrue to countries where the state has the capacity to guide FDI to strategic sectors and to ensure that technology and knowledge transfers build indigenous productive capacity and help lay the foundations for industrialisation.

This, then, brings us back squarely to the issue of the role of the state in national development. Transformational change that moves African people to higher standards of living requires simultaneous, significant involvement of the three major drivers of change: the developmental state, the private sector and civil society. Without healthy cohesion between these three drivers, the goal of poverty reduction or food security will remain a dream. Thus, the models of institutional innovation that China, India and Brazil respectively adopted to kick-start the transformation of their agricultural sectors is of utmost interest to African policy makers. The aim of this book is to document both the best and the not-so-good practices in order to capture lessons that can be applied to the African context.

In considering the above, this book seeks to stimulate policy debate, to exchange knowledge, and to create awareness about how Africa's agricultural revival can be advanced. No country has entered the industrial age without first modernising agriculture, and so Africa certainly needs a green revolution if it is to lift millions of people out of poverty and embark on industrialisation.

## **2 | Agrarian transformation in Africa and its decolonisation**

Sam Moyo<sup>1</sup>

### **Introduction: peasantries and agrarian transformation**

The failed agrarian transition in Africa is the consequence of two centuries of land alienation and the super-exploitation of rural labour on large farming estates and in mines, historically most extensive in Southern Africa as well as in non-settler former European colonies, and the failure of the former colonies to integrate successfully into the unequal world capitalist trade regime. The lack of integration of African agriculture into the global food system intensified after 1980 with the implementation of structural adjustment programmes by African states under the watchful eye of the International Monetary Fund and the World Bank. The policy of privatisation of the land market accelerated the concentration of Africa's agricultural land into the hands of a few, mainly foreign, investors, while the emphasis on the production of export commodities undermined the production of food for local consumption. This export bias gave priority to the interests of monopoly capital while the politically weak peasant farmers were left to fend for themselves.

As Africa has entered the second decade of the twenty-first century, a 'third wave' of land alienation, aptly referred to by activist non-governmental organisations as 'land grabbing', has started to spread across the continent. Many African governments have embarked upon a strategy to attract foreign direct investment (FDI) to the agricultural sector, supposedly to reverse the productivity decline of peasant agriculture. It was hoped that FDI would bring the necessary modern technology, infrastructure and inputs to kick-start an African green revolution. With the triple crisis in the energy, food and finance sectors in 2008, the scramble for African land by private capital from Europe and the emerging countries of Asia to grow both agrofuel and basic food items has intensified. This 'third wave' in the rush for land further marginalises the already impoverished peasantries, thus fuelling new political and resource conflicts in many countries where large-scale land leases are being granted.

This chapter examines the diverse forms and phases of land alienation and dispossession of the peasantries, the destruction of food production systems and the underdevelopment of agrarian productive forces within a historical context. It is argued that the current phase of land alienation is part and

parcel of the long history of primitive accumulation by monopoly capital in collaboration with local elites. The destruction of African peasantries is being promoted in the name of making those same peasantries efficient producers to meet their own needs as well as participate in the global marketplace. The central question posed in this book is the following: would Brazil, China and India, as external investors in African agriculture, intensify the historical process of 'accumulation by dispossession' or ameliorate it?

### **Accumulation by dispossession in Africa: historical and contemporary trends**

By the 1960s, the Africa of the labour reserves (Amin 1972) or 'settler Africa' (mainly in South Africa, Rhodesia, Namibia, Kenya and Algeria) had witnessed the first wave of extensive 'land grabbing' by European settlers. Settler colonial states created large-scale commercial farming (LSCF) systems based on private property rights, assigned mainly as individual family-operated farms, spatially segregated from the black African communal areas. These included some enclaves of agro-industrial estates heavily subsidised by the state. Dispossession of African peasant lands by the British South Africa Company and others led to widespread displacement and landlessness, which ensured the super-exploitation of cheap labour (compelled both economically and otherwise) while destroying the peasant economies (Denoon 1973; Magubane 1979).

Settler estates were also created in the Lusophone territories (Mozambique and Angola), and on a smaller scale in various migrant labour 'sending' states (such as Malawi, Zambia and Mozambique). While these developments did not lead to the complete dispossession of peasant lands, the resulting dispossession was so extensive that it undermined the peasantry (almost completely in South Africa) and led to the creation of a migrant labour system across the region. This resulted not in enclaves but in a functional dualism, which subjugated labour and repressed peasant farming.

Accumulation 'from above' through land dispossession and displacement of the peasantry, and through economic and extra-economic coercion of labour in former settler-colonial countries, characterised the first wave of alienation in Southern Africa, from the eighteenth century until the mid-1900s (Arrighi 1973; Harvey 2006). Given a veneer of legality by the British Crown, European land settlement led to monopolistic control over national water resources and public infrastructure investments for the benefit of white settlers and LSCFs. The remaining peasant farmers were destroyed not only by land alienation but also through discriminatory commodity markets. This resulted in a shift from the production of food by peasants towards the production of commodities dominated by large farmers supported by state marketing boards and European merchants. This mode of accumulation and political rule of the Southern African state, including its institutions of taxation and the social

security systems, were racially discriminatory, undemocratic and repressive (see Mkandawire 2010), while placing the burden of social reproduction on the labour of the peasantries.

In 'non-settler Africa', two broad land alienation histories prevailed through an indirect mode of colonial rule (Amin 1972; Mamdani 1996). In the 'Africa of the concessions' (largely in Central Africa), land alienation by European trading and mining companies led to the creation of a few significant enclaves formed around agricultural plantations, with rudimentary agro-processing facilities, as well as mining enclaves. This mode of primitive accumulation entailed the plunder of raw materials and limited infrastructure investments. The history of resistance to this enclave dispossession (for instance, in Cameroon) is well documented (Crowder 1968; Amin 1972; Palmer and Parsons 1977; Baye and Khan forthcoming).

Elsewhere, in the Africa of the '*économie de traite*' (Amin 1974), which evolved from two centuries of European mercantilism, there was widespread African resistance to Lord Lugard's attempts to alienate land in the British colonies (Mamdani 1996; Crowder 1968). This led to a pervasive growth of 'petty (agricultural) commodity production' among differentiated peasantries (Bernstein 2001) or 'small cultivators' (Mafeje 2003). Critically, this mode of colonisation also involved institutionalised labour migration, including the incorporation of migrant farmers from the northern territories of West Africa into the coastal and forest region economies. This led to the creation of diverse peasantries, including independent traditional producers, farming labour tenancies and various forms of sharecropping arrangement (see Amanor 2008). Smaller-scale agricultural estate enclaves (for example producing palm oil) also emerged in various countries. Moreover, pockets of semi-feudal agrarian structures persisted (as in Northern Nigeria and Ethiopia) or were created under colonial rule (for example, in Uganda). This colonisation pattern brought diversity to Africa's agrarian transition in relation to land alienation, agrarian structures and patterns of accumulation.

### **The post-independence experience in agrarian reforms**

In general, from the 1960s, post-independence governments halted land alienation and initiated either the nationalisation of alienated lands or the creation of new leasehold land tenures on restricted estates. This restricted foreign land ownership slowed down the commodification of agricultural lands by limiting the freehold private property regime, which had been pushed by colonial rulers. These governments also abolished the exploitative labour regimes by rescinding rural head and other farming taxes, and by reversing institutionalised labour migration systems. Armed struggles in Kenya, Mozambique and Angola culminated in substantial but inadequate land redistribution (Hanlon 1983; Leys 1975).

Post-independence, African governments sought to promote expanded production among the peasantry, using state marketing boards and input support programmes, although they tended to extract substantial shares of the agrarian surpluses purportedly for various national ‘development’ schemes. After independence, the agrarian reforms in different African countries were meant to enable local state accumulation from agricultural surpluses, through an increased focus on agricultural production for export. This was aimed at increasing foreign exchange revenues in order to finance the expansion of import substitution industrialisation designed to produce goods that would otherwise have to be imported (Bates 1981; World Bank 1989).

The ‘modernisation’ of agriculture from the 1970s onwards was largely pursued through bimodal farming strategies. On the one hand, the policy sought to nurture middle- and larger-scale capitalist agricultural production systems, and, on the other, to promote a degree of increased productivity among peasants by directing their produce towards state marketing boards so that a portion of the earnings could go towards developing national infrastructure and industrialisation. However, even the national agrarian capitalists were subordinate to the extraction of surplus value by transnational corporations, which were protected by centralised state marketing regulations (Swainson 1980; Leys 1975). Up until the 1970s, various African states attempted to establish a few large-scale farming (cropping and ranching) estates, building mostly on nationalised colonial agricultural estates (for example in Tanzania and Malawi), and to encourage private African capitalist farmers through land redistribution (as in Kenya) and, in some cases, on lands newly alienated under customary tenures (as in Botswana and Malawi). Surplus extraction continued to be at the expense of African peasantries (Shivji 1975; 2009; Chachage 2009) and cheap labour was provided to large estates (Kitching 1980; van Zwanenberg and King 1975; Brett 1973).

As Africa entered the 1970s, the gap between the state and the peasantry widened. Excessive taxation by state-owned marketing boards, underinvestment in infrastructure and vital agricultural services in rural areas, forced removal of peasants from fertile areas to make way for large-scale export agriculture – and the downright mistreatment of peasants by central government authorities – created the conditions for the peasants to resist. Rural development in the post-independence period was largely viewed by the peasantry as a deliberate attempt by the authorities to reduce them to destitution (Watts 1983; Scott 1985; Cheru 1997: 153–69).

### **Agrarian reforms in the structural adjustment period of the 1980s**

After being admonished by the World Bank (in the Berg Report; Berg 1981) for failed agricultural experiments, for the largely urban bias of agrarian policy and for the putative inefficiencies of state intervention (trade protectionism,



state marketing regulations, participation through commodity boards, etc.), as well as inefficient state farming (see Mkandawire and Soludo 1999), African states were compelled to stop subsidising agriculture. The state-owned agricultural estates were gradually dismantled and privatised in the 1980s with the implementation of structural adjustment programmes. It is in this context that, from the mid-1980s onwards, domestic capitalist farming elites and foreign capital expanded large-scale farming in many parts of Africa, while subsistent peasant farmers were left to fend for themselves (Cheru 1989; Onimode 1989).

Indeed, the neoliberal land policy reforms unleashed during the 1990s (Manji 2006) resuscitated the commodification agenda and laid the legal and political basis for the current wave of land alienation. In countries such as Mozambique, Tanzania and Zambia, the expansion of large-scale ranching took place through the dispossession of pastoralists of their land and water resources (Molomo 2008). This second wave of land alienation, as with the first wave of 'land grabbing' in settler Africa, was popularly resisted, albeit unsuccessfully, including through armed rebellion, given the feeble response of the burgeoning national 'civil societies' (see Moyo and Yeros 2005; Moyo 2008).

The policy focus on LSCF in the period following the 1980s has been incorrectly premised on the belief that small farmers are inefficient, not inclined to adopt technological innovation and uninterested in capturing larger markets through increased productivity. On the other hand, the larger 'commercial' farmers are presumed to be more capable of leading agricultural transformation in Africa (Mafeje 2003), despite their historical dependence on imported farm technologies (machinery, equipment, seeds, fertiliser and agro-chemicals) and their focus on the export of agricultural raw materials rather than food production for domestic consumption. This exclusive focus on export-led agriculture has, in reality, created a disarticulated economy and has increased the dependence of African countries on food aid and expensive food imports.

Besides an overemphasis on export agriculture, the policy of structural adjustment also brought about significant changes in land tenure relations in Africa. The orthodox view was that the supposed absence of clear tradable land property rights in Africa limited 'tenure security', and thus constituted a barrier to agricultural investments and technological innovations, leading to underproduction and food insecurity. Allegedly, the traditional tenure systems undermined 'individual' incentives and restricted the mobilisation of agricultural finance. On the basis of these erroneous assumptions, land tenure reforms became part of the package of deregulating domestic markets and investment policies, and of trade liberalisation. Land reforms attempted to formalise and individuate land through titling, establishing larger-scale (commercial) farmers and 'decentralised' land 'governance' (Migot-Adholla 1994). Consequently, by the late 1990s, many African countries had reformed national land policies

into homogeneous legal and administrative positions focused on enhancing land transactions (Manji 2006; UNECA 2004).

Land ownership inequities began to reflect class, gender and ethno-regional cleavages, creating growing land ‘scarcity’ and landlessness (Moyo 2008). In the process, subsistence farmers and pastoralists have been squeezed by internal population growth and externally led displacements. Consequently, small farmers are being forced to produce on physically marginal land. Pressure on agricultural land has resulted in rapid soil exhaustion, which exacerbates the decline in yields, overgrazed grasslands and high rates of deforestation (UNEP 2002). This further undermines the livelihoods of small producers while fuelling widespread conflicts over land and natural resources in many parts of the continent.

### **The consequences of neoliberal agricultural reform for food security**

The structural distortion of Africa’s agrarian system since independence has been socially reconstituted through neoliberal policy regimes that have undermined agricultural production structures and have led to low productivity. The post-1980s market-oriented reforms were designed to reverse the productivity decline but have had the opposite effect, increasing the development of industrial agriculture at the expense of smallholder farming (Moyo 2000). It was the reversal of agricultural and wider interventionist policies under structural adjustment and the fiscal crises peasants experienced that halted the growth of peasant productivity (see also Patnaik 2008: 9). These policies have produced the results outlined below.

*Underinvestment in agriculture* The decline in Africa’s food production per capita was a consequence of both limited access to land by small producers and various on-farm production constraints, including the exploitative input and output markets. Low levels of state investment to support small-scale farmers, who are vulnerable to extreme weather volatility, also played a critical part. The deceleration of agricultural technological transformation, through reduced per capita utilisation of inputs (improved seeds, fertiliser, etc.) has constrained land and labour productivity, particularly among small producers. Fertiliser use, in terms of kilograms used per hectare on arable and permanently cropped land, is also low compared with that in other continents. On average, African farmers apply about 20 kilograms per hectare (nine in sub-Saharan Africa) compared with 150 kilograms per hectare in Asia and 90 kilograms per hectare in Latin America (FAO 2005). The level of agricultural mechanisation in the region varies between countries (see Table 2.1) and is relatively low compared with that in other continents. Ox-drawn traction and hand-and-hoe ploughing and weeding dominate farming practices, while some demographically smaller countries are highly mechanised.

TABLE 2.1 Number of tractors and harvester-threshers in selected African countries

Country	Tractors (number per 1,000 hectares)				Harvester-threshers (number per 1,000 hectares)					
	1999–2001	2003–05	2006	2007	2008	1999–2001	2003–05	2006	2007	2008
Algeria	12.5	13.1	13.7	13.9	14.0	1.1	1.1	–	–	–
Botswana	12.9	13.6	11.7	11.3	13.5	–	–	–	–	–
Egypt	30.6	33.2	35.4	36.6	37.2	0.8	0.7	0.9	0.9	1.1
Eritrea	1.0	–	–	–	–	0.2	–	–	–	–
Ghana	0.5	0.5	–	–	–	–	–	–	–	–
Kenya	2.4	–	–	–	–	0.2	–	–	–	–
Madagascar	0.3	0.2	–	–	–	–	–	–	–	–
Mali	0.4	0.2	0.3	0.3	–	–	–	–	–	–
Morocco	4.9	–	–	–	–	–	–	–	–	–
Nigeria	0.6	0.7	0.6	0.7	–	0.0	0.0	0.0	0.0	–
Senegal	0.2	0.2	–	–	–	–	–	–	–	–
Somalia	1.0	1.0	1.2	–	–	–	–	–	–	–
South Africa	4.9	4.4	–	–	–	0.8	0.7	–	–	–
Sudan	0.7	0.9	1.0	1.2	1.2	0.1	–	–	–	–
Swaziland	17.1	8.5	8.6	8.7	–	0.0	0.0	0.0	0.0	–
Tanzania	1.8	–	–	–	–	–	–	–	–	–
Togo	0.0	0.0	0.1	0.1	0.1	–	–	–	–	–
Tunisia	11.5	12.7	14.1	14.9	14.3	0.9	0.9	1.0	1.2	1.2

Note: Dashes in the table indicate that no figures are available.

Source: FAO 2010

*Declining productivity and increasing dependence on imported food* The productivity decline is also caused by the dramatic reduction in government investment in critical infrastructure such as rural roads, irrigation, research and development. Less than 2 per cent of Africa's 1 billion hectares of cropped area (and only 13 million hectares of 43 million hectares of potentially irrigable land) is irrigated (UNEP 2002). Livestock productivity trends are equally low.

The failure of the state to promote food security and agricultural production has resulted in an increased dependence on food imports, which negatively affects the terms of trade, as shown in Table 2.2. Cereal importation was relatively low from 1961 until the early 1970s, after which time it increased from 9 million tonnes in 1971 to 34.8 million tonnes from 1990 to 1999.

TABLE 2.2 Value of imports and exports of cereals: world versus Africa (US\$ billion)

	1999–2001	2003–05	2006	2007	2008
Africa imports	7.4	9.9	11.9	17.6	22.5
World imports	40.5	50.5	58.7	85.2	120.1
Africa exports	0.4	0.7	0.8	1.0	1.2
World exports	36.0	44.6	51.9	79.3	108.5

Source: FAO 2010

Africa was a net food exporter during the 1960s but now imports 20 per cent of the cereals it consumes, and two-thirds of African countries are net importers of agricultural products while only 14 countries are net exporters (UNECA 2009b). In 2002–04, Africa's trade deficit in food amounted to US\$9 billion, and this figure has been growing in recent years. From 2000 to 2005, Africa's average food trade bill was US\$17.34 billion for exports and US\$24.00 billion for imports, resulting in a deficit of US\$6.06 billion (ibid.). The food import bill rose from below US\$20 billion in 2000 to more than US\$33 billion in 2006, when the deficit was close to US\$9.6 billion, an increase of about 45 per cent compared with 2005. Thus, these food imports have diverted limited foreign currency resources from agricultural productivity and other human capability-enhancing social and economic investments.

*Increasing dependence on food aid* In addition, many African countries became even more dependent on food aid in order to fill the food supply gap. Food aid deliveries to the African continent increased sharply in 1990–92 due to drought in most regions of Africa and then declined thereafter. Food aid shipments to Africa were over 5 million tonnes in 1990–92 before declining to less than 3 million tonnes in 2004–06. However, total aid increased to over 3.5 million tonnes in 2006, reaching 115 million people at a cost of over US\$2.4

billion (WFP 2007). In Southern Africa, food aid increased sharply from 2001 until 2007, when it returned to the 1998 levels. Between 2001 and 2003, US\$1 billion was provided (an average of US\$333 million per year).

Import dependency means that food prices within Africa are influenced by the vagaries of global markets, as well as by various shortcomings of intra-regional trade. In the Southern African Development Community (SADC) region, for example, consumers of imported foods and farming inputs have been captive ‘price takers’<sup>2</sup> of food and inputs produced in South Africa and elsewhere because of South Africa’s pivotal role in the region. The unequal regional food trade and food import dependence, therefore, shapes the SADC region’s agrarian system, including underinvestment in domestic food production.

*Under-consumption of food and increased poverty* Underproduction in agriculture is directly correlated with under-consumption of food and increased poverty. Over the past decade, food prices have been volatile across Africa. The situation has been more severe since the 2008 food and fuel crisis, which has put basic food out of reach of the poor while the middle classes are spending more and more of their earnings on procuring basic food items. The consumption and production of high-value foods (meat, milk products and pulses) are relatively low. However, per capita consumption of higher-cost protein-rich foods varies significantly across regions, and differences in access to these foods are even more pronounced than those in access to staple foods (see Table 2.3). Chronic vulnerability to food insecurity is common, particularly among peasant populations dependent on rain-fed agriculture.

TABLE 2.3 Consumption of key commodities by sub-regions of Africa in 2004 (percentages)

Commodity	Central	East	North	Southern	West	Total
Maize	2.6	30.6	17.0	32.0	17.7	100
Beans	5.4	44.6	2.1	9.8	38.1	100
Rice	2.4	19.9	22.0	7.2	48.5	100
Oilseeds	8.1	20.8	4.1	5.1	61.9	100
Beef	5.7	26.0	30.6	23.1	14.6	100
Milk	2.5	22.5	52.0	15.0	8.0	100
Poultry	2.7	7.8	38.2	36.6	14.7	100
Fish products	7.9	38.0	21.2	10.1	22.8	100
Cassava	5.0	45.9	0.4	14.2	34.5	100
Millet	3.6	10.7	5.0	3.1	77.6	100
Sorghum	5.7	17.0	23.3	3.8	50.2	100

Source: UNECA 2009a

This under-consumption has resulted in complex food and social crises whereby the relative unavailability and high cost of food have affected millions of people for decades (Wiggins 2005). This was exacerbated by the 2001–03 droughts and the rise in world food prices since then. The debilitating health and social effects of reduced consumption (calorific intakes) or consumption behaviour changes (for example, switching the types of food consumed or reducing the number of meals) have long been apparent. Absolute numbers of undernourished people between 1990–92 and 2005–07 in Africa ranged from 171.3 million to 208.5 million (FAO 2010). Family assets are eroded, resulting in weak resilience and failing livelihoods. Morbidity and mortality also rise because of increased vulnerability to waterborne diseases such as malaria, cholera and diarrhoea.

Almost 30 years after African countries first embarked on neoliberal agricultural reform, many countries face chronic food insecurity, especially among the poor, and food production remains inadequate.<sup>3</sup> Cereal deficits in domestic regional production on the continent are common, while food prices have been volatile. These vulnerabilities persist because of the distorted agricultural production system, which emanates from a lack of integration into the speculative world food market and the farm-input capital markets. The expected benefits of liberalisation of agricultural/technological transfer and the availability of infrastructure finance and scientific know-how have so far not materialised to transform African agriculture. Instead, neoliberal policies undermined the capacity of small producers, failed to increase technological transformation and led to income deflation through wage repression (Moyo 2000; Patnaik 2008; Dorward et al. 1998).

Moreover, the reduction in government budgets for critical agricultural investments, such as irrigation, rural transport, bulk food storage and ancillary services (for instance, electricity), significantly constrained peasants in their ability to expand production of and access to food. This, alongside trade liberalisation, reduced the purchasing power of the poor and restricted multipliers such as employment and income, leading to repressed local demand for peasant produce and farm inputs. Preferential support to large farms producing for the export market led to uneven development, reflecting the unequal political power of the peasants vis-à-vis large farmers and the corporate capitalist sector. Therefore, the renewed interest in land acquisition through FDI in African agriculture must be examined to determine whether such investments increase Africa's food security, build an indigenous technological base, and truly increase the productivity of African agriculture without undermining food security.

### **Capitalist crisis, 'third-wave' 'land grabbing' and peasant incorporation**

*The triple crisis: finance, food and energy* Recent increases in the prices of oil and basic foods have triggered a rush to secure arable land in Africa and other

developing countries. The rate of increase in the prices of food grains, edible oil and livestock products, particularly between 2006 and 2008, was the most dramatic (Mitchell 2008) experienced over the last 30 years, given that in real (US dollar) terms food prices had been on the decline.<sup>4</sup> Some argued that the price increases reflected a mismatch between global supply and demand, due to increased grain consumption in Asia (Minot 2008; Krugman 2008 cited by Patnaik 2008); the reduction of 'Western' grain stocks due to weather-induced harvest failures, especially in Australia (Minot 2008); the rise of farm input costs as a result of oil price escalation (Ghosh 2008; Mitchell 2008; Minot 2008); and commodity speculation (Tabb 2008).

While many investors from the Middle East, particularly the Gulf states, seek to secure land in Africa to grow food for home consumption, others, especially from Europe and energy-dependent emerging countries, are mainly concerned about energy security and the production of biofuels. The shift in the uses of African land to the production of agrofuels has resulted in an escalation in land prices. Although the precise area of land being converted to biofuel production is unknown, there is increasing evidence that the trend is growing, threatening the survival of many peasant communities. The diversion of grain to agrofuel production automatically contributed to food price escalation and the price of land and farm inputs skyrocketed in the face of declining supplies (Ghosh 2008; Mitchell 2008).

The agrofuel production process was influenced by the political pressures and security concerns of the Western energy industry, capital funds, the science and technology industry and the aid system, reflecting 'high levels of rent seeking strategies' led by professional lobbies and think tanks (Von Braun and Meinzen-Dick 2009) as well as the so-called bureaucratic stasis and warped incentives that drive aid officials (Bird et al. 2003). The underlying drivers, however, were the speculation activities of finance capital in oil and commodities (Tabb 2008; Ghosh 2008), including futures pricing of commodities (oil, food and others), irrespective of the actual trends in their physical supply and consumption. Wider systemic mechanisms drove the underproduction of food in the South and the related food price increases, given that the global food system is embedded in financial and commodity markets.

A major reaction by capital to the recent food price crisis has been a new scramble for land in Africa, mainly to produce food and biofuels for export, using the large estate production model (Moyo 2008). At least 5 million hectares have been leased in over 20 African countries to 'foreign investors' (Von Braun and Meinzen-Dick 2009; Cotula et al. 2009; Thompson 2008; Tabb 2008). The large-scale land acquisitions through leasing and outright purchase by foreign capital in African countries have escalated during the 2000s (GRAIN 2009), with the explicit and tacit approval of governments and sections of the elite (Alden Wiley 2008). This represents a third wave of land alienation in all the

African regions, creating numerous enclaves of large plantations or estate farming, frequently alongside 'buffer zones' of co-opted small 'out growers'.

A new rush for African lands for agriculture, mining and natural resource extraction, which entails a growing East–West–South rivalry to gain footholds on the entire continent, is predicted (Yeros 2011; Moyo 2011; Matondi et al. 2011). The land investors hail from as far afield as the US and European countries, to China and South Korea, and to the Gulf states and Brazil (see Table 2.4; GRAIN 2009; Petras 2008). This trend not only raises concerns about the extent of land alienation and concentration, but also suggests the intensified subordination of the continent's peasantry and labour by monopoly capital during the present crisis.

Indeed, most of the former settler countries in Southern Africa have encountered this as a third wave of large-scale foreign land acquisitions (or 'land grabbing'). This new trend builds on the inherited land tenure regime, which is racially skewed and historically has excluded the majority of black Africans. The critical difference is that it is mainly previously alienated large farms (owned by private and public corporations and individual white LSCFs) that are being sold and/or leased to new foreign 'investors' from Asia, Europe and the Middle East. The agrarian accumulation model continues to be based on an outward-looking agricultural strategy, except in the case of Zimbabwe, which is veering towards internal markets, food sovereignty and autonomous development (Matondi et al. 2011).

Apparently popular resistance and policy regarding the 'land deals' are not against the principle of FDI per se. The resistance centres on the scale, speed and non-transparent nature of the land deals. In Mozambique, for example, the resettlement of 1,000 Chinese agricultural workers without prior consultation or debate in parliament provoked huge opposition as local Mozambicans felt threatened by the possible loss of employment opportunities for them. Similarly, the leasing of 1.3 million hectares in Madagascar to a South Korean investor provoked a political crisis and a coup in 2009 that overthrew the regime in power.

Moreover the issue of unequal power relations is considered to arise from land deals between the investors and local communities in a situation where local elites and host governments are found to be on the side of the former. This has prompted the African Union to devise a framework governing land deals in Africa and a special programme within the United Nations Economic Commission for Africa to monitor such land deals and ensure that they comply with principles that respect the rights of local communities and the need to make such deals transparent (African Union 2008).

The recent wave of deals in Africa by foreign investors has its supporters. While some social movements warn of extensive dispossession and displacement of small-scale farmers and pastoralists (GRAIN 2009), many other civil



TABLE 2.4 Agricultural land acquisitions in Africa (2011)

Investor	Target	Acquired land (million ha)	Arable land (million ha)	Acquired land as % of arable land	Acquired land as % of total land
China	Democratic Republic of Congo	2.8	6.7	41.8	1.2
	Zimbabwe	0.1	3.7	2.7	0.3
	Cameroon	<0.1	6.0	0.2	<0.1
Egypt	Uganda	0.9	5.7	15.1	4.4
	Ethiopia	<0.1	13.6	0.1	<0.1
South Korea	Sudan	0.8	13.6	5.6	0.8
Jordan	Sudan	<0.1	20.7	0.1	<0.1
United Arab Emirates	Sudan	0.4	20.7	1.8	0.2
Saudi Arabia	Sudan	<0.1	20.7	0.0	<0.1
	Tanzania	0.5	9.6	5.2	0.6
India	Ethiopia	0.8	13.6	5.6	0.8
Libya	Mali	0.1	4.9	2.0	0.1
	Liberia	<0.1	0.4	4.3	0.2
Qatar	Kenya	<0.1	5.3	0.8	0.1

Source: Ibrahim Forum 2011

society organisations consider these investments as developmental ‘opportunities’ to reverse the stagnation of agricultural productivity and food insecurity in Africa (Cotula et al. 2009; World Bank 2011a). The proponents of FDI in African agriculture take the position that the threat of dispossession to the peasantry can be mediated through internationally supervised guidelines on best practices.

However, the search for African land is premised on the erroneous assumption that there is abundant unutilised land, which is presumed to have no (formal) owners and which should be brought into production (see Von Braun and Meinzen-Dick 2009). Critics of large-scale land leases, on the other hand, argue that what is considered ‘unutilised land’ is in fact the main source of livelihood for pastoralists and is important to migratory wildlife, and that these territories should be left alone and protected from commercial farming. Moreover, the critics point out that land alienated in favour of agribusiness is primarily turned over to the production of new exports, such as biofuel, food grains and timber, and for tourism purposes at the expense of poor peasant households. These discourses eschew alternative endogenous agrarian reforms aimed at accumulation from below.

### **Agrarian resistance to neoliberalism: the case of Zimbabwe**

In much of Southern Africa, extensive land expropriation and the systematic regulation of migrant labour through organised recruitment and peasant taxation initiated a proletarianisation process (Arrighi 1973; Sibanda 1988; Moyo and Yeros 2005). Large farming estate schemes and institutionalised labour migration systems undermined the land rights and the productive capacity of subsistence farmers, while subsidising capital’s labour costs through forced migration of Africans into European-owned farms.

It took protracted armed struggles to repossess land in settler colonies such as Kenya, Zimbabwe and the former Lusophone states of Mozambique and Angola. In countries such as Tanzania and Zambia, some of the dispossessed land was nationalised immediately after independence and coercive measures aimed at the super-exploitation of the peasantries were abolished. However, as Africa entered the second decade of independence, new economic policies, as coercive as the policies of colonial powers, were introduced in the name of economic reform and the modernisation of agriculture, thereby fundamentally altering agrarian relations from the 1980s onwards. While the policies favoured commercial agriculture in a deregulated market economy, the role of the state in determining the direction of national development was significantly curtailed. Land markets, delivery of basic inputs and the marketing of goods and services were privatised. In this deregulated market environment of the 1980s and 1990s, the ‘second wave’ of land alienation took place, leaving small-scale farmers vulnerable to a market dominated by local

TABLE 2.5 Estimated landholdings by farmer groups in Zimbabwe (1980, 2000 and 2010)

Farm category	Farms/households (ooo)				Area (ooo)				Average farm size (ha)		
	1980 No. / %	2000 No. / %	2010 No. / %		1980 Ha / %	2000 Ha / %	2010 Ha / %		1980	2000	2010
Family farms*	700 / 98	1,125 / 99	1,321 / 98		16,400 / 49	20,067 / 61	25,826 / 79		23	18	20
Small / middle-scale commercial farms**	8.5 / 1	8.5 / 1	30.9 / 2		1,400 / 4	1,400 / 4	4,400 / 13		165	165	142
Large farms	5.4 / 1	4.956 / 0.4	1.371 / 0.1		13,000 / 39	8,691.6 / 27	1,156.9 / 4		2,407	1,754	844
Agro-estates	0.296 / 0.1	0.296 / 0.02	0.247 / 0.02		2,567 / 8	2,567 / 8	1,494.6 / 5		8,672	8,672	6,051
Total	714 / 100	1,139 / 100	1,353 / 100		33,367 / 100	32,726 / 100	32,878 / 100		46.7	28.7	24.3

Notes: \*Combines communal, old resettlement and A1 areas \*\*Combines A2 and small-scale commercial farmers areas

Source: Moyo 2011

elites and foreign capital. The process of marketisation was undertaken on the pretext of modernising peasant agriculture.

Independence in former settler states from the 1960s onwards compromised social transformation and eschewed mechanisms for the equitable redistribution of wealth, incomes and landed property, since social changes were left to the markets and protected by 'the rule of law' (Eicher and Rukuni 1994; Bratton 1994; Alexander 1994). Land redistribution was minimal and foreign-owned farming estates even expanded during the second wave of land alienation in the neoliberal structural adjustment period of the mid-1980s and the 1990s (Moyo 2000). The concentration of land in the hands of a few intensified social polarisation. Liberalised agricultural policies and land tenure, including constitutional reforms, initiated in Africa in the 1990s onwards created the conditions for the second wave of land alienation and the intensified marginalisation of the peasantry, which was incorporated into capital through various means. These radical transitions in agrarian relations prepared the ground for the recent 'land grabs'.

Only in Zimbabwe, and only since 2000, was a genuine effort made to remedy the historical injustices of settler colonialism as well as the failure of the market-based land reforms implemented in the post-1980 period with the support of Western donors. Even this feeble effort had its domestic and external opponents, who had much to lose from a government effort to empower the peasantry (Moyo 2011; Scoones et al. 2010).

*The Fast Track Land Reform Programme of 2000* The response of the government of Zimbabwe to the inherited inequality in land and the further concentration of land as a result of structural adjustment was the Fast Track Land Reform Programme (FTLRP), which it began to implement from 2000 onwards (Matondi 2012). FTLRP led to the extensive redistribution of Zimbabwe's agricultural land and the socialisation of property rights. It expropriated large farmlands owned by over 3,000 white farmers and 20 large foreign-owned estates and allocated the land free of charge mainly to about 150,000 poor non-landed beneficiaries, comprising families from within the peasantry and urban working people. However, it also provided land to over 20,000 black 'middle class' and 'elite' beneficiaries, while retaining some of the core lands of the agro-industrial sugar estates and wildlife conservancies (see Table 2.5).

Meanwhile, the state expanded land for its estate farming from 18 to 24 estates, and resurrected farming by state corporations. About 20 per cent of such state farms are now joint agro-industrial ventures with foreign capital from the East combined with domestic state and private capital. Over 95 per cent of Zimbabwe's agricultural land is now state-owned and is mostly allocated through land user grants to peasants and through leases to new middle-scale 'commercial' farms, while a few farms retain freehold land rights (Moyo 2011).

Most beneficiaries perceive their land tenure to be secure, with only 5 per cent having experienced evictions, and many of them are investing in the land, although some of the new middle-scale farmers and finance capital call for private property rights in order to attract 'investment'.

Fewer than the expected number of former farm workers gained land, although in general rural labour has been freed from the monopoly of a few large farm employers, while retention of the retrogressive 'compound farm labour tenancy' now faces resistance from agricultural workers. Land reform has integrated the previously divided territorial authority and spatial economic barriers that segregated the peasant land from the former LSCF areas, leading to greater flows of people, goods and services between them (Moyo 2008). The extension of hereditary local authority into the redistributed land areas has the potentially retrogressive implication of reinforcing patriarchal relations, which undermine women's land and labour rights. A key regressive feature of the disproportionate representation of middle-class and elite beneficiaries is that some of them, including those with multiple plots, argue for even larger land allocations and call for freehold property rights, while a few sublet their land to former large farmers. The consequence is a new interclass inequality in the control of public resources and influence over agrarian policies.

Within a comparative context, however, the land reform programme significantly altered property relations in terms of the relative distribution of land and the socialisation of property rights. This has created a situation whereby the prospect of realising socially progressive agrarian change in Zimbabwe has become ever more difficult. Just and progressive agrarian change entails the broadening of the food production base and increasing productivity among small- and medium-scale farmers who are the majority. Needless to say, these innovative goals are constrained, largely due to shortages of fertilisers, irrigation facilities and farm machinery. Such shortages arise from reduced domestic agro-industrial inputs and supply capacities, as well as from foreign exchange constraints on imports, partly due to Zimbabwe's international isolation. These shortages and new inequalities in access to agricultural inputs, subsidies and limited available finance have mostly affected the peasantry. The recent return of agrarian merchant capital to subcontract tobacco, sugar and cotton production has reintroduced a degree of obsession with export-oriented farming at the expense of producing food grains for domestic consumption (Bird et al. 2003; Kalibwani 2005; Moyo 2011). Unless properly managed, FDI from China, India and Brazil can become part of the problem in African agriculture, further reinforcing the historical process of 'accumulation by dispossession'.

New alliances of multiracial domestic and foreign capital now dominate the restructured agrarian input and output markets, which are increasingly managed through exploitative subcontractual relations, while exposing new farmers to unfair international terms of trade. The prices realised by mostly

small-scale producers of maize, cotton and some oilseeds are below those prevailing on the world market, although Chinese inputs and contracts relating to commodity buying have improved them somewhat. Current state and donor support for smaller producers is minimal, and includes little agricultural machinery and infrastructure investment, largely because it does not support the recovery of the domestic agro-input industries. Private contract farming and commodity merchants dominate agrarian markets because of the reduced fiscal capacity of the state in a 'dollarised' economic policy framework and the so-called 'illiquidity' of the financial sector, ostensibly because of the absence of investor confidence. China has expanded financing for agrarian reform to fill the financing gap left by the departure of European capital, but financial allocations to farming and agro-industry remain inadequate (Moyo 2011).

The Zimbabwean experience suggests that, even under neoliberalism, the potential for extensive land reform in support of the peasantry exists, especially where land grievances that relate to the monopoly of large tracts of land by a small minority of white farmers are challenged by a radicalised nationalist coalition that includes well organised peasant movements (Scoones et al. 2010; Moyo 2011). However, the cross-class nationalist coalition still has to operate within neoliberal policy structures, which soon lead to agrarian distributional bias, including bias arising from class, ethnic and gender cleavages. Moreover, since capital was not totally ousted by Zimbabwe's land reform and autonomous sources of agrarian financing are limited, internal class contradictions have enabled politically unaccountable international capital to reconstitute unequal agrarian relations, using liberal domestic markets tied to the unequal world trade regime (Moyo 2011).

## Conclusion

Mainstream debates on Africa's allegedly failed agrarian transition or its 'agricultural and food crisis' have tended to focus narrowly on presumed physiocratic limitations, land tenure deficiencies and the putative technological backwardness of peasant producers as the sources of failure. However, they have neglected the effects of land alienation, super-exploitation of labour and unequal trade relations in restricting domestic agrarian accumulation and extroversion, a restriction that underlies food production deficits. The effects of unequal trade on agricultural and industrial development in Africa up to the 1970s have been well documented (Amin 1974), while the evolving internal class relations and alliances with capital associated with unequal exchange and the mechanisms of surplus value extraction have been noted (Shivji 2009). The longer-term history of extraction in economies and industries through colonial state transfers of resources from the South and the illogical attempts to argue that 'comparative advantage' determines agrarian development have also been exposed (Patnaik 2011).

Africa's agrarian question – the enhancement of the productivity of the majority of its peasant farmers – remains unresolved. Disarticulated development, unequal trade relations and uneven regional development reflect the political influence of narrow middle- and upper-class consumer and export markets, at the expense of the majority poor, under the direction of monopoly agribusiness and finance capital with the support of local elites who control political power. This process is integral to the exploitative logic of the unequal world food system and the crisis of capitalism, and has fuelled new 'land grabbing' and new aid conditionalities that seek to subordinate the peasantry further.

The interests of agribusiness and finance capital cannot be directed spontaneously at promoting increased African food productivity and ensuring food security for the majority of Africans. Policies have to compel such reform (Patnaik 2003). Instead, foreign capital and domestic elites seek to universalise the commodification of land and water and expand contract farming relations with the peasants, thereby reinforcing accumulation by the dispossession of peasantries at the expense of food sovereignty and social reproduction. In the absence of coherent and proactive policies by African governments, investments from Brazil, China and India in African agriculture may end up reproducing the same destructive and unsustainable system of industrial farming at the expense of the majority of African small-scale farmers and the natural resource base that they rely on to sustain themselves.

Indeed, the recent export of capital to Africa for the exploitation of agricultural land, water, minerals and other natural resources reflects the escalation of the speculative tendency of capital to accumulate by dispossession, in the wake of the collapse of the housing, energy and derivative financial markets. The effects of the prolonged crises of the oligopolistic capitalist system (see Tabb 2008; Ghosh 2008; Patnaik 2008; Moyo 2010) have been to undermine the African peasantry and agriculture in general and to depress their overall economic well-being. This trend can only be reversed by national and regional policies that seek food sovereignty, including by protecting land rights, access to water and control over biodiversity resources in favour of the peasantry and in order to prevent further dispossession.

Enhancing human capabilities among peasantries is key to restructuring the food system – including through endogenous research and extension capacities, enhanced consumer trade protection and farmers' movements – and to peasant involvement in agrarian policy making and programme implementation (Moyo and Yeros 2005). Addressing the agrarian question in Africa could be enhanced by promoting regional integration in the agricultural input and output markets, equitable industrialisation and the creation of state-supported food reserves and a food trade based on solidarity. The inalienable land rights of small-scale producers are central to this.

## PART II **India**





### **3 | India and Africa: new trends in sustainable agricultural development**

Gurjit Singh

#### **Introduction**

India's engagement with Africa is currently in a transformational stage, from good political relations historically to a diversified functional relationship. Agriculture is at the forefront of this new engagement. At the time of the first India–Africa Forum Summit (IAFS), held in New Delhi in April 2008, the Framework of Cooperation was adopted between India and Africa. Subsequently, at the second IAFS, held in Addis Ababa in May 2011, the Framework of Enhanced Cooperation was adopted. In both these documents, agriculture was the top priority for collaboration between India and Africa.

Agriculture in Africa suffers from low productivity owing to a lack of technology, capital and investments, and a lack of consistent commitment to transforming the sector in which the majority of Africans earn their living. Ironically, this food-deficient continent is also a major exporter of agricultural commodities, as national development priorities have been sidestepped in favour of commodity exports of fruit, vegetables, tea, coffee and the like to generate foreign exchange. Besides the preoccupation of governments with expanding export production, the rules of international trade and the utilisation of duty-free concessions offered by the US and the European Union (EU) often lead to such distorted production patterns, which in turn lead to asymmetrical trade flows, so that the countries of Africa import basic staples such as maize, rice or wheat while exporting coffee and cocoa to Western markets.

It is pertinent to note that, other than Egypt and South Africa, almost all African countries depend on between one and six commodities for 75 per cent<sup>1</sup> of their total exports (Broadman 2007), and often export earnings remain the most important aspect of their revenue generation, given the slow pace of domestic production, which would contribute to local taxation (Singh 2007).

#### **India–Africa cooperation in agriculture: scope and content**

Against this backdrop, the government of India has been working closely with the African Union (AU), the regional economic communities (RECs) of Africa and bilaterally to create a new cooperation agenda for transforming African agriculture. This cooperation covers five areas, which are discussed below.

*Capacity building* Under the Framework of Cooperation issued during the first IAFS (IAFS 2008b), Africa and India agreed that agricultural development is an effective approach to ensuring food security, eradicating poverty and improving peoples' livelihoods, and agreed to strengthen Africa–India cooperation in this sector to improve the food security of countries as well as to increase their exports to world markets. The parties emphasised the sustainable development of agricultural and animal resources through effective support for scientific research into the conservation of land and the environment. Cooperation will focus on several areas, including:

- capacity building and sharing of experience in policy analysis and planning relating to the agricultural sector;
- water resource management and irrigation practices, agro-infrastructure development, transfer of applied agricultural technology and skills transfer;
- combating agro-based diseases;
- capacity building or training to increase the capacity of African small-scale landholders to comply with required food quality and safety standards, including extension activity and agricultural credit policies;
- sharing experience and information on appropriate storage and processing technologies and jointly promoting the uptake of African- and Indian-developed technologies in order to diversify and add value to food and agricultural products;
- sharing of expertise and information between commodity boards in Africa and India with a view to learning from each other about farm mechanisation, post-harvest technology, organic farming, policy and regulatory frameworks and the setting up of cross-border commodity exchange boards;
- enhancing market opportunities for African value-added agricultural products;
- livestock management, breeding technologies, meat processing, dairy industry development, fisheries and aquaculture, including the exchange and transfer of applied technology;
- establishing links between agriculture and industrial development in order to support and nurture agro-processing industries; and
- enhancing cooperation between agricultural training centres and relevant research institutes (ibid.).

These commitments are in various stages of implementation and it is too early to assess their effectiveness in addressing the capacity gap in African agriculture. Where experience sharing is concerned, there are several avenues for implementation, including through agricultural scholarships, the Indian Technical and Economic Cooperation (ITEC) programme and postdoctoral fellowships. On other aspects, for instance enhancements of market opportuni-

ities for agricultural products, the offer to Africa to establish an integrated food processing cluster and integrated textile cluster would be a way of achieving these objectives. The implementation of these ideas has to be seen within the context of specific offers for institutions and training, as well as scholarships, and there is adequate scope for new programmes to be developed in fulfilment of these objectives.

Under the Framework of Cooperation action plan, and in order to enhance agricultural education, science and research, India is providing 25 doctoral and 50 masters' scholarships in agriculture per annum to African students in Indian institutions, covering different disciplines. To ensure equitable access, the AU Commission coordinates the process of selecting prospective candidates in conjunction with the government of India and its embassies in Africa (IAFS 2008c).

India also provides customised 'short-term training related to transferable skills focusing on training of trainers who will transfer expertise to stakeholders at national level' (ibid.). This is to be achieved through 'targeted visits of Indian professionals for field demonstrations based on mutually agreed objectives and missions with beneficiary stakeholders' (ibid.). This approach will include 'on-the-spot consultations and in-country training' and the 'provision of essential hardware and software in field demonstrations', along with 'exchange[s] of literature, seed, and planting material, as well as sharing of best practices in agriculture' (ibid.). The field demonstrations are to be implemented as agriculture fellows return to their own countries and after the establishment of the RECs. The setting up of training and ITEC programmes relating to agriculture is an ongoing process.

Under the Framework for Enhanced Cooperation (IAFS 2011a) issued during the second IAFS,<sup>2</sup> Africa and India reaffirmed their commitment to cooperate in order to increase agricultural output and achieve the Millennium Development Goal of halving the proportion of people suffering from hunger and malnutrition by 2015. The parties emphasised the importance of harnessing the latest scientific research for raising productivity and conserving land and the environment to ensure food security for the people and to bring down currently rising food prices, making food affordable and accessible to all. In order to do this, they agreed to collaborate on the implementation of the Comprehensive Africa Agriculture Development Programme (ibid.).

Among the decisions taken at the second forum summit, India agreed to establish several agriculture-related institutions at various levels. The India-Africa Institute of Agriculture and Rural Development (IAIARD) is a proposed pan-African institute to be set up in consultation with the AU. Three specific institutions are to be established in consultation with the RECs: India-Africa regional soil, water and tissue testing laboratories; agricultural seed production-cum-demonstration centres; and regional farm science centres

(IAFS 2011b). They are offered to all eight RECs, and some RECs have already sent nominations for host countries. Furthermore, scientists and experts from the Department of Agricultural Research and Education and Indian Council of Agricultural Research (ICAR) will visit Africa before mid-2013 to train more than 600 people with the aim of building capacity across the continent to enhance crop production, fisheries production and the post-harvest processing of food grains and marine products. The proposed locations of agriculture-related institutes in Africa are set out in Table 3.1.

IAIARD, patterned on the National Bank for Agriculture and Rural Development (NABARD) in India, will be implemented through NABARD Consultancy Services. This will be a pan-African institution, the location of which is to be decided by the AU. Once the decision has been made, work with the host country will start. The proposed IAIARD institute will help in building and enriching human resources by sharing knowledge acquired in India with participating countries in Africa; capacity building in agriculture and rural development; bridging the information gap; and helping forge closer cultural links between Africa and India.

IAIARD is expected to emerge as the premier training institute in Africa, offering training and consultancy services in agriculture and rural development, with poverty alleviation its focus, and it will cater to the needs of bankers, government officials, the staff of rural financial institutions and microfinance institutions, non-governmental and civil society organisations, donor agencies and others in the field. It will also provide training in broader areas such as approaches to lending, natural resource management, post-harvest technology, institutional development, microfinance, general banking modules and cooperatives, rural infrastructure, agro-export zones, credit planning, livelihood support and financial inclusion. The proposed institute, once it is fully operational, will be an important piece of infrastructure for Africa, focusing on human capital formation and agricultural and rural development.

At the regional level, it was decided to establish three different kinds of institution through the RECs to support agricultural development. Farm science centres are proposed as agricultural innovators and diffusers of new technologies important to developing countries' quest for food security. Farming in resource-poor areas must be sustainable to provide dependable long-term support for rural households. To achieve this, farmers must have access to sustainable technologies in cropping, livestock, forestry and fisheries. The farm science centre is an innovative institution developed by ICAR and has played a vital role in the application of technology on farms in India. Since 1974, the farm science centre concept has grown into a large network in India, totalling 630 units by 2012.<sup>3</sup> It is proposed that similar centres will be set up in each of the eight RECs in Africa.

These centres will undertake on-farm testing to identify the appropriate

TABLE 3.1 Proposed locations of agriculture-related institutes in Africa (2012)

Type of institution	Countries
Rural technology park	Zimbabwe Republic of Congo Malawi South Sudan Côte d'Ivoire
Food-testing laboratory	Republic of Congo Benin Zimbabwe Gambia Chad
Food-processing business incubation centre	Uganda Cameroon Ghana Mali Angola
Technical assistance programme (TAP) in the cotton sector	Benin Burkina Faso Chad Mali Malawi Uganda Nigeria
India–Africa food-processing cluster	Location to be decided by the AU
IAIARD	Location to be decided by the AU
Regional soil, water and tissue testing laboratory	Kenya Democratic Republic of Congo Burkina Faso
Regional farm science centre	Ethiopia Central African Republic Liberia
Regional agricultural seed production-cum-demonstration centre	South Sudan Republic of Congo Togo

*Source:* Information collected from various sources, including implementing agencies and the Indian Ministry of External Affairs website (<http://mea.gov.in>)

agricultural technologies under various farming systems; organise front-line demonstrations to establish the production potential of technologies on farmers' fields; train farmers and update their knowledge of and skills in modern agricultural technologies; train extension personnel to familiarise them with new technological developments; and serve as agricultural technology

resource and knowledge centres in support of public, private and voluntary initiatives to improve the agricultural economy in the districts.

As a result of India's experience of increased fertiliser use, an essential component in the green revolution, over the past 40 years India has followed a site-specific balanced nutrient management approach. This is known as the targeted yield approach, and it was adopted by ICAR. Based on soil testing, this methodology seeks to fertilise both the crop and the soil and helps the farmer to harvest the yield he can expect from a given piece of land. The technology has been perfected under integrated nutrient management, which envisages the use of local organic resources available to farmers and involves fertilisation practices for the whole cropping system rather than for individual crops. India has agreed to share its green revolution experiences and collaborate with countries in Africa to increase crop yields through soil, water and tissue testing laboratories in African countries. This proposed project involves establishing soil and water testing laboratories (SWTLs) and the generation of balanced nutrient prescriptions based on available organic resources and chemical fertilisers. The centres will aim to achieve specific objectives, including developing soil-test-based fertiliser prescriptions for important crops and providing training in soil testing to people who could extend this work to other parts of the country and could also educate farmers.

Eight SWTLs will be established in consultation with the RECs. Each SWTL will be associated with two mobile soil testing laboratories so that proactive efforts can be made to assess soil fertility. The ultimate goal is to galvanise local stakeholders, including farmers, to open many more laboratories and promote soil-test-based and balanced fertilisation of crops and soils.

Given that the quality and appropriate variety of seed are the most critical inputs for enhancing the production of high-quality pulses and oilseeds, seed production-cum-demonstration centres in Africa have been proposed (ibid.). To ensure the availability of quality rapeseed/mustard seed and pulse crops in eight African countries, centres with required infrastructure are to be identified. Exploratory trials will be undertaken to identify appropriate oilseed and pulse cultivars, with farmers participating in varietal selection. The most appropriate varieties of seed will be produced at each centre, and the centres will also serve as demonstration sites for production technology suitable for oilseed and pulse crops. Good agronomic practices will be followed at these centres to ensure apposite rates of seed production.

A recommended package of practices will be followed to maximise the production potential of each crop variety. The seed production blocks will also serve as demonstration blocks, covering production management practices including weed management, nutrient and water management, and integrated disease and pest management. All agricultural activities, from land preparation to harvest, will be monitored by experts in oilseeds and pulses. Post-harvest

operations such as threshing, storage and processing will also be demonstrated in these centres, which will play a catalytic role in enhancing pulse and oilseed production.

The vision behind such capacity-building support, through special scholarships and programmes in India as well as through the creation of capacity-building institutions in Africa, is to enable Africa to have its own trained human resources and productive capacity, both of which will contribute to the expansion of sustainable agriculture. The institutions that India proposes to establish will help regional and national support systems in many African countries and will provide a basis for linking productive assets with processing facilities and for attracting foreign direct investment (FDI) in agriculture.

*Trade dimension* The rapid growth in India's trade with Africa has been due mainly to the import of commodities such as oil, coal and gold; these imports have strengthened India's trade relationship with Nigeria and South Africa in particular. Although agricultural trade is much smaller, there are growing imports of agricultural commodities from Africa and exports of processed food products from India to Africa.

An assessment of the overall growth in India–Africa trade between 2005 and 2010 shows that eight main agricultural commodities (see Table 3.2 below) were exported from Africa to India, accounting for 73 per cent and 71 per cent of African exports in 2005 and 2010 respectively.

Among the commodities listed in Table 3.2, cashew nuts are by far the largest component, with imports worth over US\$500 million per annum for the last three years shown in the table. Agri-commodities such as legumes and pulses, such as *toor dal* (yellow pigeon peas), are significant import items as well. Imports in this category of legume family rose about five-fold between 2005 and 2007 and approximately 20 times between 2005 and 2009, although there was a slight decline from US\$169 million in 2009 to US\$139 million in 2010.

The terms of trade and concessions offered to Africa through the Economic Partnership Agreements,<sup>4</sup> the key elements of the Cotonou Agreement (previously the Lomé Accords) between the EU and its former colonies in Africa, the Caribbean and Pacific, and the US African Growth and Opportunity Act (AGOA) of 2000 have often made African countries important sources of agricultural commodities that are in demand in traditional markets. Luxury and labour-intensive crops such as horticulture, floriculture, coffee and tea are among the main products for export, mainly to the developed countries of the North. However, most of these products are also exported by India and there is little complementarity in the trade of agricultural commodities between India and Africa in this category, unless there is an unexpected shortage.

It is my belief that India is responding adequately to Africa's desire for value added in its agricultural products, both by supporting research (through



TABLE 3.2 Africa-India trade growth in eight main agricultural commodities (US\$ million; 2005-10)

Product	Subcategory product description	2005	2006	2007	2008	2009	2010
Cashew nuts in shell		409.42	361.07	385.90	525.30	579.07	555.09
Other legumes		9.17	8.76	44.40	49.24	169.22	138.91
	Tur (arhar)	8.75	8.72	44.10	49.24	168.95	138.84
Cotton, not carded	Cotton, other than India, of all staples	78.92	63.44	114.10	185.60	105.57	53.18
Cloves and stems		12.21	18.10	16.64	13.14	19.86	18.02
	Cloves extracted	4.49	7.31	5.38	2.80	3.95	5.66
	Cloves, not extracted (other than stem)	3.89	7.97	8.12	6.86	10.02	6.74
	Other cloves	3.83	2.82	3.13	3.48	5.75	5.59
Other seeds	Other seeds (broken)	6.63	20.83	27.29	15.92	19.93	14.62
Fermented and other		7.25	6.03	6.70	8.82	11.08	14.02
	< 20 kg (fermented) and other partly fermented tea	4.54	3.11	4.01	4.99	3.69	5.22
	Tea black, leaf in bulk	1.01	0.28	0.17	1.42	2.69	2.57
	Tea black, dust in bulk	1.02	1.25	1.70	1.73	4.37	5.06
Other seeds		6.01	6.14	7.25	10.26	8.92	11.92
	Other bark, husk and rind, fresh/dried w/n cut/crushed/powdered	3.49	4.30	6.16	8.82	6.72	9.03
	Other roots and rhizomes, fresh/dried w/n cut	0.11	0.34	0.12	0.12	0.17	1.38
Decaffeinated arabica		0.61	3.98	19.45	14.70	8.70	10.01
	Coffee arabica plantation, other grade	0.13	1.53	9.34	8.59	1.09	1.22
	Coffee rob parchment, other grade				1.03	6.27	8.67
Total		530.22	479.59	621.73	822.98	922.35	815.77
Total of all agro-imports		724.5	634.1	907.4	1,160.0	1,358.8	1,149.0
These eight products as a percentage of total agro-imports		73.18	75.62	68.51	70.94	67.88	71.0
Total of all imports (US\$ billion)					24.7	25.6	32.0
Agro-imports as a percentage of total imports					4.69	5.30	3.59

Source: Government of India, Ministry of Commerce and Industry, Department of Commerce, FT (Africa) Division 2010

a slew of institutions detailed earlier) and by establishing clusters such as those dealing with food processing, diamonds and textiles, which will not only impart skills but will actually create value chains. Indian investment takes an integrated approach, for example sugar plantations and sugar mills, cotton growing and yarn factories, palm oil cultivation and oil mills, and so on.

However, crops such as cashews and pulses, for which there is growing demand in India, provide opportunities for accessing the vast Indian market, opportunities that have been recognised and seized on by some countries in Africa, for example Malawi. Thus, trade in agricultural commodities between India and Africa can be increased in sectors where there is complementarity. In 2010, India's imports of agricultural commodities from Africa was valued at a total of US\$1,149 million, of which the top eight products cited in Table 3.2 accounted for 71 per cent by value. Agricultural imports accounted for 3.6 per cent of total imports in 2010, a decline of about 1.7 percentage points from the previous year (see Table 3.2).

There is, however, no doubt that incentivisation through duty concessions, the Cotonou Agreement and AGOA have led to about 30 per cent of African exports going to Europe and another 30 per cent to the US. There has also been a surge of exports to Asia, mainly India and China, although this is due more to the availability of markets and to demand than to incentivisation.

*Duty-free Tariff Preference scheme* Several countries have used the provisions of the Duty-free Tariff Preference (DFTP) scheme to enhance their access to Indian markets. Under this scheme, announced by the prime minister of India at the first IAFS in April 2008, India is unilaterally providing 'preferential market access for exports from all 50 least developed countries (LDCs), 34 of which are in Africa' (IAFS 2008d). The scheme covers 94 per cent of India's total tariff lines. Specifically, the scheme provides preferential market access for 92.5 per cent of the global exports of all LDCs. Products covered of immediate interest to Africa include aluminium ore, cashew nuts, cane sugar, cocoa, cotton, copper ore, fish fillets, ready-made garments and non-industrial diamonds (ibid.). At present, 19 African LDCs are beneficiaries of India's DFTP scheme. In addition, there are 15 other countries in Africa eligible for preferential tariffs under the scheme (see Table 3.3).

Benin, for instance, has added edible fruits and nuts to its basic exports of cotton and oilseeds. Although the value is modest at US\$96 million (in 2009), these products comprise 64 per cent of Benin's total exports. Burkina Faso exports cotton, edible fruits and nuts, which account for 90 per cent of its exports to India. Cameroon, Equatorial Guinea, Gabon, Republic of Congo, Mali, Nigeria and Sierra Leone are major exporters of wood and wood products to India. For most of these countries, increased exports to India through DFTP have increased the value of their trade basket.

TABLE 3.3 Beneficiaries of India's DFTP scheme (2012)

Beneficiaries of the DFTP scheme (19 countries)	Eligible for the DFTP scheme but have yet not acceded (15 countries)
Benin	Angola
Burkina Faso	Chad
Burundi	Comoros
Central African Republic	Democratic Republic of Congo
Eritrea	Djibouti
Ethiopia	Equatorial Guinea
Gambia	Guinea
Lesotho	Guinea-Bissau
Madagascar	Liberia
Malawi	Mauritania
Mali	Niger
Mozambique	São Tomé and Príncipe
Rwanda	Sierra Leone
Senegal	South Sudan
Somalia	Togo
Sudan	
Tanzania	
Uganda	
Zambia	

*Source:* Compiled by the author from data available on the Indian Ministry of Commerce website ([http://commerce.nic.in/trade/international\\_tpp\\_DFTP.pdf](http://commerce.nic.in/trade/international_tpp_DFTP.pdf))

*Line of credit support to agriculture* Lines of credit (LOCs) are offered by the Export-Import Bank of India (EXIM Bank) to support the development of infrastructure and to provide integrated support to African countries and regions. The choice of projects is largely made by the African countries themselves. Analysis of LOCs to African countries between 2005–06 and 2011–12 shows that 18 countries presented proposals for agriculture-related support and received a total of US\$1,225 million during this period (see Table 3.4). Among the biggest projects financed by India was US\$640 million for the development of the sugar industries in Ethiopia. Burkina Faso, Gambia, Guinea-Bissau, Senegal, Sierra Leone, Swaziland and Tanzania sought India's assistance to acquire tractors and other agriculture-related equipment (Singh 2009a). LOCs helped raise crop productivity levels in four of the Team 9 countries of West Africa,<sup>5</sup> namely Cameroon (maize and rice), Chad (cotton), Côte d'Ivoire (cocoa, rice and coffee) and Togo (maize and wheat), and in the Southern African country of Mozambique (maize and wheat) (see Chapter 4).

Of the LOC-supported projects, 25 projects related to agricultural development, including irrigation projects but excluding hydropower projects, which are

TABLE 3.4 Agricultural and related projects funded through LOCs from EXIM Bank (2003–12)

Country	Year	Projects	Value (US\$ million)
Burkina Faso	2005–06	Acquisition of tractors, harvesters, agro-processing equipment	30.0
Cameroon	2008–09	Maize plantation project, rice plantation project	37.7
	2011–12	Cassava plantation	42.0
Chad	2005–06	Cotton yarn plant, agro-processing plant, irrigation equipment	50.0
Côte d'Ivoire	2005–06	Vegetable extraction, fruit and vegetable chips, cocoa and coffee production	26.8
	2007–08	Fishery processing unit, coconut fibre processing plant	5.5
	2009–10	Rice production programme	30.0
Ethiopia	2007–12	Development of sugar industry	639.5
Gambia	2005–06	Supply of tractors	6.7
Ghana	2008–09	Fish harvesting, fish processing	11.0
Guinea-Bissau	2005–06	Purchase of tractors and water pumps	2.5
Lesotho	2003–04	Irrigation equipment	5.0
Malawi	2007–08	Irrigation storage, tobacco threshing plant	30.0
	2010–11	Cotton processing, green belt initiatives	50.0
Mali	2009–10	Agriculture and food processing	15.0
Mozambique	2010–11	Enhancing productivity of rice, maize and wheat	20.0
Senegal	2004–05	Purchase of agri-machinery and equipment	15.0
	2005–06	Irrigation project	27.0
Sierra Leone	2008–09	Procurement of tractors, harvesters, rice threshers, rice mills, maize shelters, pesticides	15.0
Sudan	2006–07	Supply of agricultural inputs	15.0
	2007–08	Mashkour sugar project	25.0
Swaziland	2011–12	Agricultural development, mechanisation of agriculture	37.9
Tanzania	2007–08	Export of tractors and pumps	40.0
	2011–12	Biodiesel production	35.0
Togo	2011–12	Farming and cultivation of rice, maize, sorghum	13.1
Total			1,224.7

Source: Compiled by the author from data available on the EXIM Bank website ([www.eximbankindia.com](http://www.eximbankindia.com))

also supported by India. Table 3.4 illustrates the Indian government-supported LOCs to the agricultural sector in African countries through EXIM Bank.

*The foreign direct investment dimension* While there are challenges facing India's agricultural sector, there have been achievements as well. One of the major focal points has been India's transition from being a food-importing country to a country that has attained food security for its billion people with occasional surpluses for export. For African countries, this model of agriculture is one they aspire to emulate and is a source of inspiration. Ironically, the current context of transnationalisation of agribusiness has sometimes led to the subordination of national priorities to global market forces. As a consequence, the so-called new agricultural countries of the global South, including those in Africa, have become net exporters of products such as tea, coffee, poultry, horticulture and animal feed on the international market. Since their national development agendas did not prioritise national food sufficiency, they have ended up as major importers of food such as maize, rice and wheat.

Having realised that international markets incentivise these distortions, African countries have now prioritised the achievement of food security. There is an evident gap between food demand and supply in many African countries that could be reduced significantly through enhanced domestic agricultural production, the preferred option. Although the gap can be bridged through imports of food grain, this option has its pitfalls, as there can be uncertainties of supply due to the vagaries of international markets.

Since 2008, the acceleration in the global food price index and the demand for biofuels have led to growing investment by other countries in the African agricultural sector (Cotula et al. 2009: 4–5). Agriculture-related FDI is being undertaken mainly through increasing private sector participation in international agriculture in order to expand the acreage under cultivation and achieve food security. The challenge now is whether these trends can be harnessed, providing self-sufficiency in food and reducing dependence on imports through increased domestic agricultural production. For this to happen, large areas have to be brought under cultivation and the output of existing areas has to be maximised.

While the countries of the global South seek ways to alter the distorted structure of international trade in agricultural commodities, farmers often lose out when commodity prices go up dramatically due to their inability to supply the market with goods in time, and in the quantity and quality needed. Due to lack of finance and technology, they are unable to respond quickly to price changes.

Supply is very inelastic, which means that it does not respond quickly to price changes. Typically, aggregate agriculture supply increases by 1 to 2% when prices increase by 10%. (Von Braun 2007: 5)

While many countries look to agricultural outsourcing to ensure a supply of agri-products and to reduce pricing vagaries, the global financial crises of 2008 that led to a sharp rise in food prices saw many countries resorting to export control measures, limiting the export of food products to ensure domestic food security (Kapur 2009).<sup>6</sup> Thus, the sustainability of free markets for food has come into question. This situation also heightened understanding of the fact that the gap between demand for and supply of food products is likely to grow in the years ahead, a cause of concern for net food-importing countries and an investment opportunity for those willing to take the risk of trading in agricultural commodities.

Africa, with its vast tracts of underutilised or unutilised land, seems to be a lucrative proposition in terms of expanding areas under cultivation. African countries, therefore, by providing surplus arable land for cultivation, can find new avenues to attract FDI; ways to increase the domestic supply of food and thus reduce dependence on food imports over whose prices they have little control; and a means of increasing exports of those agricultural commodities whose prices are rising.

### **The current scenario: how sustainable is the Indian approach of promoting food security through land leases?**

Various studies have shown that the acquisition of land by international investors has increased around the world, particularly in Africa and Latin America, and to a lesser extent in Asia. According to a World Bank report, about 46.6 million hectares of land were acquired by such interests in 2008–09 and covered 464 projects (World Bank 2011a cited in Guzman 2010). It is noteworthy that about 70 per cent of the land acquired and half the projects were in Africa; according to International Food Policy Research Institute (IFPRI) estimates, 15 to 20 million hectares were acquired under 180 agricultural deals between 2006 and 2009 (IFPRI 2009 cited in Guzman 2010). IFPRI also points out that 32 million hectares were acquired in a single year. In some of the cases covered by the IFPRI study, large investments have been made by West Asian and East Asian countries, including China and South Korea, in various African countries, particularly Cameroon, Ethiopia, Ghana, Madagascar, Malawi, Nigeria, Senegal, Sudan and Tanzania (Von Braun and Meinzen-Dick 2009) (see Chapters 2 and 6).

The growth in international trade and investment in agriculture has led to a surge in land acquisitions in African countries, which many see as a useful tool to attract FDI. It is significant that of the African countries mentioned above, most are not oil economies, and therefore they see fallow arable land as a major source of economic development.

The driving force behind investments by Arab countries, including Bahrain, Qatar, Kuwait, Jordan and Saudi Arabia, and many Asian countries such as

China, Japan, Malaysia and South Korea, is the achievement of food security for their home markets.<sup>7</sup> Countries such as Mauritius and Djibouti have acquired farm land in Mozambique,<sup>8</sup> Ethiopia<sup>9</sup> and Sudan to ensure a sustainable supply of agricultural commodities for their domestic use.

Africa's arable land has also attracted attention because rising oil prices and the consequent demand for biofuels has led to increased investment in the production of the latter alongside agricultural commodities (see Matondi et al. 2011: 1). Africa, with its vast swathes of arable land, was the natural 'growth frontier' for absorbing the increased investments in food and biofuels. Studies have shown that private investment funds, including hedge, pension and private equity funds, have invested in agricultural land in developing countries during the early part of the twenty-first century, thereby producing a wave of FDI in agriculture (United Nations 2009).

There are several approaches to agricultural outsourcing for food sustainability and for investment purposes. The Gulf states, which have limited access to water and land but have surplus capital, form one group of countries looking at agricultural outsourcing for food sustainability. Similar efforts are being made by Japan and South Korean companies. However, China, which is self-sufficient in food at present, is looking for a reserve that could both support food exports from Africa to China and enable the transfer of Chinese labour into agricultural areas in Africa.

Much of China's offshore investment in agriculture is in rice, soya bean, sugar cane and cassava, some of which can be used for biodiesel production. These projects bring with them labour and workers from China. Although China's private companies have led this investment push, as with all other Chinese engagements with Africa, the private sector is formally backed by the government and its resources. It is significant that in the case of many of the Gulf states, Japan and South Korea, there is intergovernmental collaboration as well as facilitation of such investments, since the overall purpose is not merely to promote trade and investment but to achieve sustainable food security for these countries.

### **Indian investments in Africa: historical and contemporary trends**

It is interesting that Indian investment in agriculture in Africa has perhaps attracted the most attention. While there are no confirmed figures for investments by Indian companies in African countries, there is no doubt that such companies are among the leading investors and that their investments have been solicited and welcomed by African countries. Indian investors have been invited because they are a major source of local capacity building through the transfer of technology, the creation of local employment, and contributions to intra-African trade as well as exports. It is this approach that endears Indian investment to many African countries, especially investment that encourages

the agricultural sector. It is also significant that India's engagement with Africa in the agricultural sector has largely met expectations.

The early movement of plantation workers through indentured labour to Mauritius, for instance, contributed significantly to that country's establishment and subsequent growth of its sugar sector. This sector has been central to the country's development following its independence in 1968. Similarly, many malaria-infested 'bad lands' in western Kenya and Uganda were brought under sugar-cane cultivation after the Mombasa–Uganda railway line was built, largely by Indian engineers.<sup>10</sup> There was investment in cotton in East Africa by well-known Indian companies post-independence, but the real surge in Indian investment abroad came with the liberalisation of the Indian economy in 1991, and mainly after 2000.

Significantly, many Indian companies with the necessary expertise and knowledge of local conditions invested in floriculture and horticulture and seized the opportunities offered by the Cotonou Agreement for preferential access to European markets and by AGOA for access to the US. There was a significant growth in Indian private investment in floriculture in Kenya. However, the upgrading of Kenya to a middle-income country and the stripping away of preferential access to European markets, as well as turmoil in Zimbabwe, led Indian companies to seek new agricultural lands, mainly for the cultivation of roses, in other countries such as Ethiopia (Singh 2009b). The development of cashew nuts in many African countries also attracted Indian investment.

By the time the FDI boom in agricultural outsourcing peaked, Indian companies were already established and were in a position to expand the flow of investment to large farms. The role of Indian companies has evolved in that they work with African countries as investors to increase third country exports, and the success of such ventures has coincided with moves by many African countries to look at agriculture as a viable FDI vehicle. The government of India offered no incentives or specific directions for companies to move into commercial agriculture for outsourcing agricultural requirements. However, there is no doubt that the general thrust of Indian investment in Africa, mainly through the India–Africa conclaves since 2005, has provided an enabling environment for Indian companies to link up with their African counterparts in order to strengthen trade and investment relationships, including investment in African agriculture. The Indian DFTP scheme, which was announced at the first IAFS in April 2008 (IAFS 2008d) and covers all LDCs, 34 of which are in Africa, focuses mainly on enhancing access for African products to the growing Indian market. Given the limited range of such products, this has partly incentivised investments that, as they are aimed at export earnings, will now also look at the possibilities for exporting agricultural goods to India. However, this is not an official policy of the government of India.



Interestingly, as Indian companies moved into commercial agriculture, they attracted much criticism from think tanks, non-governmental organisations and the media. Furthermore, while large-scale farms owned by Africa's traditional partners in Europe and elsewhere were defended, the new wave of Indian investment drew a sharply negative response. Indian investments in Africa are generally seen by Indian officials as responsible as well as responsive to local laws and enabling legislation (see also Broadman 2007), as they are required to be. Investors have to realise that there are variations in the socioeconomic practices prevailing in India and in different African countries. Even the concept of the transfer of land rights is often very different from one African country to another. In most African countries, land is state-owned and the concept of private ownership of land is evolving. Consequently, in some countries land can be leased, in others purchased in conjunction with local partners, and in yet other countries private-public partnerships can be entered into. Significantly, in some African countries, Indian companies have engaged with local communities to secure land rights but have preferred to opt out where the community does not have clear rights to that land.<sup>11</sup> Similarly, many companies are willing to engage in contract farming and have a cellular model whereby there is core investment in leased farms and incentives and technical support to bring the productivity of contract farms into line with the leased farms.

In general, Indian companies have been good about meeting their corporate social responsibilities by creating local employment, transferring technology and contributing to domestic and intra-African trade (see also *ibid.*). It is possible that Indian companies will seek to expand further into commercial agriculture and venture into the production of food crops such as rice, wheat and palm oil and also move away from horticulture and floriculture into commodities that could play a bigger role in the world market. In fact, the increase in the area under food crops and the possible entry by Indian companies into the market for these products are seen not only as expanding opportunity but also as enhancing market access and consequently influencing international pricing.

## **Conclusion**

Most Indian companies should view investment in commercial agriculture both as a source of profit and as a contribution to sustainable development. They must also interact appropriately with local communities, even where these communities are not legal land owners, and engage with them so that their cultural rights are not violated and to ensure that economic benefits are shared with local stakeholders.

Indian companies should focus on areas where there is underemployment or unemployment and bring in major mechanisation in areas where there is

a lack of labour. They must take adequate precautions to undertake sustainable development approaches, prevent the degradation of land or pollution of common waters, and ensure that sustainable environmental practices are followed that will also benefit local communities. Most Indian companies would like to become models of change and to bring in higher and more sustainable standards of agricultural practice.

## **4 | India's strategy for African agriculture: assessing the technology, knowledge and finance platforms**

Renu Modi<sup>1</sup>

The subject of Indian investment in African agriculture is invariably overshadowed by media reports that highlight large-scale investments in commercial farming by a handful of Indian private sector companies. The discourse has become mired in the accounts of alleged 'land grabs' and the food insecurity that such investments could trigger. In the process, the actual contribution of Indian investments to African agriculture and related sectors through finance, technology transfers, building knowledge platforms and capacity building through manpower training has largely been sidelined or gone unacknowledged.

This chapter sets out the contributions made by private companies and public sector companies of the government of India towards the development of agriculture and related sectors in Africa. Through statistical data, the first section briefly highlights the growth of India from a food-aid-dependent to a food-sufficient country. Second, it outlines the contributions of several companies to the development of the agricultural sector in various African countries. Third, it explores the provision of credit by India to African countries to support agricultural and other development. The data used in this chapter are sourced from scholarly works on the subject, brochures of companies and the Export-Import (EXIM) Bank of India, interviews with some of these stakeholders at India-Africa conclaves held since 2005 and participation in meetings and conferences on this subject.

### **India's economic miracle: from food-deficient to food-sufficient country**

India has charted an upward course by developing its agricultural sector since gaining independence in 1947. This has enabled India to attain self-sufficiency in food grains and to feed its population, the second largest in the world. After independence, agriculture and irrigation were accorded top priority in the First Five Year Plan (1951–56). Productivity increased and imports of food grains declined. However, soon after, with the unveiling of the US government's massive food aid programme under the Agriculture Trade Development and Assistance Act (also known as Public Law 480), the country grew complacent

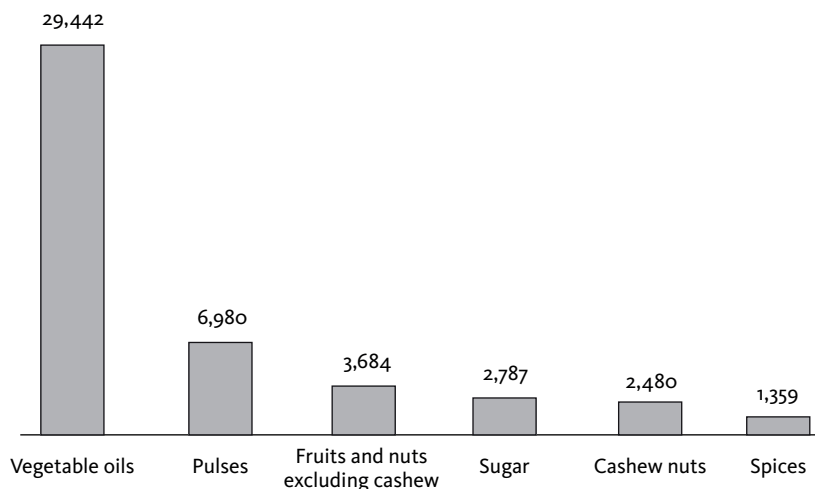
about building national self-reliance in food grains (Bhatia 1970). According to the Food Grains Enquiry Committee Report (1957):

Imports under concessional terms not only relieve us of our immediate foreign exchange commitments but also help us build a rupee fund which can be utilised for developmental purposes. (cited in Bhatia 1970: 135)

The earlier priority accorded agriculture was dropped as a matter of deliberate choice. Budgetary allocations were diverted to heavy industries in the Second and Third Five Year Plans (1956–66). Until the late 1960s, the country met its food requirements through bilateral trade agreements and food aid through the Public Law 480 programme. Food imports under the programme spiralled from about 3.2 million tons in the first purchase agreement (1956–59) to a total of 17 million tons of food grains (wheat and rice) in the fifth (1960–64) agreement (*ibid.*: 134–6). Moreover, in 1966 alone, in the wake of the severe famine conditions in the states of Bihar, Orissa and Rajasthan, to avoid mass starvation imports of cereals escalated to ‘10.4 million tons’ (*ibid.*: 137).

During this period, India’s dependence on food aid was used by President Lyndon B. Johnson’s administration to leverage India’s support for US policy in the Vietnam War, with which India did not agree (Douglass 2006). This episode, among others, spurred India to focus on food self-sufficiency. In fact, a combination of events, mainly famines in eastern India and US arm twisting, led to a rethinking among policy planners and to the realisation that relying on food imports was not a sustainable economic or political proposition for the country. Consequently, India adopted the ‘green revolution’ model to raise crop productivity. High-yield seeds and advanced agricultural technology were adopted to build up stocks of food grains and to achieve national self-reliance. In 2010–11, the country produced about 100 million tonnes of rice and total food grain production reached 242 million tonnes, enough to feed the population.<sup>2</sup> However, the country needs to respond to growing domestic demand and increase productivity, *inter alia* by augmenting investment in agricultural infrastructure, for example irrigation and water resource management.

Despite this spectacular success in producing more food, there are severe problems associated with India’s agrarian development and intense debates around issues of concern, including land reforms, use of appropriate technology, diversion of cultivable land allegedly for ‘development purposes’ and farmers’ suicides, that have remained unresolved. A significant part of the population still goes hungry. This has much to do with the absence of a sustainable agricultural policy and an inclusive growth strategy buttressed by a functioning pro-poor social policy to provide food security to those outside the safety net. Furthermore, the country also needs to improve the distribution of food grains at subsidised prices to families below the poverty line. It is ironic that a country that needs all it produces to feed its own population



#### 4.1 Major imports of agricultural commodities in India (crore rupees; 2010–11)

Note: 1 crore rupee is equivalent to US\$185,710 at the present rate of 54 rupees to US\$1

Source: Government of India 2012a: 141

also wastes about 100,000 tons of its grains (admittedly, less than 1 per cent of total production) through a lack of proper ‘management, procurement, storage and transportation’ (Mathew and Narayanan 2012: 38–9).

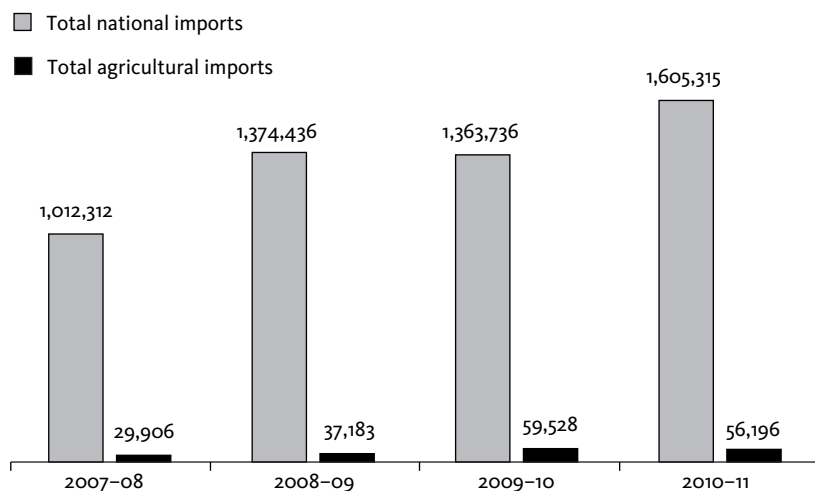
Today, national self-reliance and improved agricultural productivity provide the basis for India’s policy. However, inclement weather – drought and poor rainfall, the El Niño effect and factors such as climate change – along with other issues lead to shortfalls in agricultural commodities, especially oilseeds and pulses. These shortfalls are met through international trade. In addition to oilseeds and pulses, sugar, fruits and nuts, cashew nuts and spices are India’s top agricultural imports (see Figure 4.1). Such imports constitute a small percentage of India’s total imports, as shown in Figure 4.2.

According to the Department of Agriculture:

Agricultural imports recorded an overall decrease from Rs. 59528.33 crore in 2009–10 to Rs 56196.20 crore in 2010–11 registering a decline of –5.6 per cent over the corresponding previous period. Decrease in the value of agricultural imports during this period was primarily due to lower imports of pulses, sugar and cotton. The share of agricultural imports in total imports also decreased from 4.37 per cent in 2009–10 to 3.50 per cent in 2010–11. (Government of India 2012a: 140)

Table 4.1 shows that agricultural imports have declined in the past decade as a proportion of all imports, and that average agricultural imports for 2006–11 constitute about 3.5 per cent of total national imports.

Table 4.1 shows that in 2010–11 the percentage share of agriculture in India’s



#### 4.2 India's total imports and agricultural imports (crore rupees; 2007-11)

Source: Compiled from Directorate General of Commercial Intelligence and Statistics (DGCIS) data cited in Government of India 2012b

total imports was 3.5 per cent. During this period, Africa's share of India's total imports was 3.6 per cent (Reserve Bank of India 2012: 1122). When we consider that most of this is made up of oil, petrochemicals and raw materials – crude petroleum (68.5 per cent), gold (11.2 per cent), coal, coke and briquettes (3.8 per cent), inorganic chemicals (3.7 per cent) and metalliferous ores and metal scrap (3.1 per cent) (CII-EXIM Bank 2012: 64) – it is evident that the share of agricultural imports from Africa is, in fact, minuscule.

Table 4.2 demonstrates that Africa's contribution to India's agricultural imports is insignificant. The important import items by quantity are cashew nuts, pulses, spices, tea, fruits and nuts (excluding cashew) and cereal preparations. Besides, the major import items (cashew nuts, along with some spices such as black pepper) are not for home consumption. Instead, raw cashew imports from West Africa and certain spices are for 'processing and re-exports, as domestic production is not adequate to meet the demand of processing capacity installed in the country' (FICCI n.d.).

The above statistics on India's state of agriculture and imports affirm the following: first, India is self-sufficient in food grains to meet domestic requirements; second, shortfalls in certain products such as oilseeds, pulses, cotton, sugar and spices are met through international trade; third, Africa's share of India's agricultural imports is insignificant and over 95 per cent of India's imports of agricultural commodities are from the global market. This evidence dispels the ongoing discourse that India's engagement in agriculture on the continent (including in land) is being undertaken to meet the country's food requirements at home.

TABLE 4.1 India's imports and exports of agricultural commodities compared with total national imports/exports (crore rupees; 1990-2011)

Year	Agricultural imports	Total national imports	Agricultural imports as % of total national imports	Agricultural exports	Total national exports	Agricultural exports as % of total national exports
1990-91	1,205.86	43,170.82	2.79	6,012.76	32,527.28	18.49
1991-92	1,478.27	47,850.84	3.09	7,838.04	44,041.81	17.80
1992-93	2,876.25	63,374.52	4.54	9,040.30	53,688.26	16.84
1993-94	2,327.33	73,101.01	3.18	12,586.55	69,748.85	18.05
1994-95	5,937.21	89,970.70	6.60	13,222.76	82,673.40	15.99
1995-96	5,890.10	122,678.14	4.80	20,397.74	106,353.35	19.18
1996-97	6,612.60	138,919.88	4.76	24,161.29	118,817.32	20.33
1997-98	8,784.19	154,176.29	5.70	24,832.45	130,100.64	19.09
1998-99	14,566.48	178,331.69	8.17	25,510.64	139,751.77	18.25
1999-00	16,066.73	215,528.53	7.45	25,313.66	159,095.20	15.91
2000-01	12,086.23	228,306.64	5.29	28,657.37	201,356.45	14.23
2001-02	16,256.61	245,199.72	6.63	29,728.61	209,017.97	14.22
2002-03	17,608.83	297,205.87	5.92	34,653.94	255,137.28	13.58
2003-04	21,972.68	359,107.66	6.12	37,266.52	293,366.75	12.70
2004-05	22,811.84	501,064.54	4.55	41,602.65	375,339.53	11.08
2005-06	21,499.22	660,408.90	3.26	49,216.96	456,417.86	10.78
2006-07	29,637.86	840,506.31	3.53	62,411.42	571,779.28	10.92
2007-08	29,906.24	1,012,311.70	2.95	79,039.72	655,863.52	12.05
2008-09	37,183.03	1,374,435.55	2.71	85,951.67	840,755.06	10.22
2009-10	59,528.34	1,363,735.55	4.37	89,341.33	845,533.64	10.57
2010-11 (provisional)	56,196.20	1,605,314.63	3.50	120,185.48	1,148,169.56	10.47

Source: DGCIS data cited in Government of India 2012b

TABLE 4.2 Africa's share of India's top food imports (US\$ million; 2007–11)

Commodity	March 2007 to March 2008			March 2008 to March 2009			March 2009 to March 2010			March 2010 to March 2011		
	Imports from Africa	Total imports		Imports from Africa	Total imports		Imports from Africa	Total imports		Imports from Africa	Total imports	
Cashew nuts	385.94 <sup>1</sup>	425.90 <sup>2</sup>		525.31 <sup>1</sup>	581.10 <sup>2</sup>		579.07 <sup>1</sup>	642.40 <sup>2</sup>		–	544.30 <sup>2</sup>	
Cereal preparations	1.68	40.17		0.00	37.06		0.06	39.70		0.03	49.58	
Fruits and nuts	2.10	461.76		2.74	516.74		3.52	606.02		8.31	808.48	
Pulses	74.54	1,334.58		67.27	1,360.28		203.95	2,069.90		253.29	1,531.70	
Spices	21.57	241.53		18.50	234.34		26.41	302.11		28.29	298.17	
Sugar	0.02	1.46		0.00	126.99		11.82	1,258.34		3.40	611.65	
Tea	7.06	32.54		10.15	42.90		11.93	58.33		13.74	41.02	
Vegetable oils (edible)	0.00	2,558.75		0.00	3,448.92		0.00	5,586.02		2.91	6,460.85	

Notes: 1. DGCIS cited in Confederation of Indian Industry (CII) conclave brochure 2012 2. DGCIS cited in Reserve Bank of India 2012

Source: Centre for Monitoring Indian Economy data accessed through EXIM Bank



## **Indian investments in the agricultural sector of Africa**

Against this background, we turn to Indian engagement in Africa's agricultural sector, which takes place on many levels and involves both private companies and Indian government entities. The latter includes engagement in the agricultural sector through the government of India's: i) public sector enterprises; ii) grant assistance; iii) knowledge transfer and capacity building through training, scholarships to African students and practitioners under the Indian Technical and Economic Cooperation programme; and iv) lines of credit (LOCs) through the EXIM Bank of India (see Chapter 3). India's engagement on the continent is demand-driven and unconditional. It is based on the development priorities of the recipient countries and on the principle of mutual benefit. Public sector development assistance has other spin-offs as well, namely the 'promotion of Indian exports ... access to natural resources ... and bolstering goodwill vis-à-vis India in the recipient country' (Roche 2012).

*Indian private and public sector engagement in African agriculture* This section highlights the transfer of advanced agricultural technology, particularly for farming mechanisation and in irrigation. Food production in Africa is almost entirely rain-fed and high agricultural productivity is impeded by insufficient rainfall and frequent droughts.

Irrigated area as a share of total cultivated area is estimated at only 6 percent for Africa, compared with 37 percent for Asia and 14 percent for Latin America (FAOSTAT, 2009) ... Moreover, more than two-thirds of existing irrigated area is concentrated in five countries – Egypt, Madagascar, Morocco, South Africa, and Sudan – which each have more than 1 million hectares of irrigated area. For the remaining countries, the irrigated area varies from a few thousand hectares to almost half a million hectares each for Algeria, Libya, and Tunisia ... [Further], the 2005 Commission for Africa Report (2005), for example, called for a doubling of the area of irrigated arable land by 2015. Faures and Santini (2008) report that 58 percent of the rural population in Sub-Saharan Africa could benefit from some type of investment in water. Finally, irrigation development is a key investment priority for NEPAD (New Partnership for Africa's Development). (You et al. 2010: 1)

It is against this backdrop that several Indian companies are engaged in agribusiness and in supplying modern farm technology. Case studies of select private sector companies such as Kirloskar Brothers Limited (KBL), Jain Irrigation Systems, Tata Group, Mahindra and Mahindra (M&M), Sonalika International and others show the positive contribution by Indian companies to increasing agricultural productivity on the continent. The above companies provide modern agri-equipment and transfer technology through, inter alia, the sale of their irrigation pumps or solutions, tractors and harvesters. Long-term

engagement with these companies has the potential to dramatically augment agricultural output in the African recipient countries.

### **Case studies of Indian enterprises**

In the pages that follow, the contributions of Indian private companies to African agriculture are explored through a case study of two of them, namely Kirloskar Brothers Limited (KBL) and Jain Irrigation Systems; a public sector undertaking, the Water and Power Consultancy Services (WAPCOS); and a number of other private companies. These examples are merely illustrative of the private and government sector engagements in the agricultural sector in Africa, and do not provide an exhaustive view of the scale of Indian engagement in African agriculture.

KBL is a global company that offers innovative hydraulic machines and systems. The company has had a notable role in enhancing food security in Africa. KBL made its first forays into Egypt in the late 1940s to provide pumping solutions to the Egyptian government's General Authority for Rehabilitation Projects and Agricultural Development. The company began with the supply of 3,000 pumping units for sprinkler irrigation as well as electromechanical equipment for nine pumping stations in Lower Egypt. Other government departments, such as the ministry of public work's mechanical and electrical department followed suit and requested KBL technology for pumping stations. Through projects financed by the Islamic Development Bank and other sources, these ministries acquired KBL pumps for the agricultural sector in Lower and Upper Egypt. KBL machinery was also imported for agro-industrial units adding value to sugar cane, processing paper and other activities.

In addition, the company trained farmers and technical staff in various government departments and provided customer education on the maintenance of the pumps installed in the country. Thus, over the past three decades over a *lakh* (100,000) Kirloskar pumps have been installed along the River Nile, in addition to 40 pumping stations. Through advanced water management techniques, the company has contributed to the greening of 200,000 hectares of desert land for agriculture (Kirloskar Brothers Limited 2012).

The story of technical assistance and capacity building has been repeated in Senegal, where the company commenced operations in 2005. In March of that year, the company showcased its expertise by displaying triple-A (affordable, adaptable and appropriate) irrigation systems at the first CII-EXIM Bank conclave in New Delhi to a select group of ministers from over 25 African states. Senegal, which had been grappling with food insecurity and high import bills, has succeeded in reducing rice imports in a phased manner. Through a detailed field study, the government of Senegal planned to increase the area under irrigation to achieve food sufficiency, save around US\$350 million per annum in foreign exchange and produce an exportable

surplus thereafter (Kirlokar Brothers Limited 2011). Initially, the KBL team visited the rice cultivation farms in the north Société d'Aménagement des Eaux du Delta, in the south (Casamance), and along the border with Mauritania in the north and Mali in the east to collect field data. Topics examined included average rainfall, crop patterns, landholdings, actual and potential irrigated areas and irrigation systems and annual costs of rice imports. Subsequently, the company drew up a phased implementation programme involving pump sets and allied equipment of various types, sizes and quantities sufficient to usher in a green revolution.

The Senegalese ministry of agriculture signed a contract to install 2,394 pump sets and various accessories, including pipes, trolleys, hoses, pontoons and valves. Machinery with a total value of US\$27 million was procured to irrigate 65,000 hectares of farmland across the northern provinces of Dagana, Podor, Matam and Bakel and to rehabilitate the Grandik pumping station in Saint-Louis, which had been defunct for several years. The project was financed in early 2006 with a soft government of India loan to the government of Senegal through the EXIM Bank. By October 2006, the KBL team had distributed and installed the pumping systems to farmers in various provinces, and trained them in their operation and maintenance. The whole process took over three months, after which the stage was set for the first ever dry season sowing of rice. Two years later, in July 2008, *Le Soleil*, the Senegalese newspaper, reported that Senegal had harvested over 60,000 tonnes of paddy in the first ever dry season harvest, thanks in part to KBL's appropriate irrigation systems. By 2011, this figure had risen tenfold to over 760,000 tonnes of rice, as shown in Table 4.3 (Kirlokar Brothers Limited 2008; 2011).

TABLE 4.3 Impact of KBL on the output of rice in Senegal (2011)

Parameter	Before the project	After the project
Rice production	Less than 100,000 tonnes	Over 760,000 tonnes
Local rice production	Meets 19% of demand	Meets over 65% of demand
Land under irrigation	24,500 hectares	Over 80,000 hectares

Source: KBL corporate brochure 2011

In Phase II of the Food Sufficiency programme in Senegal, over 100,000 hectares of farmland will be irrigated and the country should be able to generate an export surplus of rice by 2013 (ibid.).

Jain Irrigation Systems is another company with a presence in several African countries. It supplies customised and affordable agricultural equipment, including small tractors, drilling and micro-irrigation equipment for smallholdings. The company works to conserve water and increase productivity through

high-tech agriculture and provides end-to-end solutions from production to processing. Lately, the company has moved into alternative energy and has introduced solar pumping and irrigation systems to provide water supplies in remote off-grid locations where the cost of laying on grid power is prohibitive. By offering high-quality products and efficient mechanisation solutions, the company has the potential to transform rural productivity, incomes and living standards. The core component of the Jain business model is training and capacity building. Jain's corporate motto, 'More crop per drop', has been implemented through drip or sprinkler micro-irrigation systems (Jain Irrigation Systems Ltd 2011).

In addition, a public sector undertaking, WAPCOS, part of India's ministry of water resources, provides consultancy services in water resources, power and infrastructure development and irrigation in Africa. Key agricultural projects in Africa have recently been undertaken in Ghana, Ethiopia, Lesotho, Senegal, Sudan and Uganda. In Ethiopia, WAPCOS has provided consultancy services for the development of an irrigation network for 100,000 hectares of land in the Gambella region (Phase I). In Senegal, the company has provided consultancy services and construction supervision for the lifting of water from the Senegal River valley to irrigate areas in Dagana, Podor, Matam and Bakel in northern Senegal (*Times of Africa* 2011). Furthermore, in Ghana WAPCOS has provided experts for irrigation development, while in Lesotho, Uganda and Zambia the company has completed feasibility studies on water resource development.

State-of-the-art water resource management, irrigation technology and agricultural mechanisation are critical inputs in any strategy for agro-industrial development in the world. In Africa, farm mechanisation is at an abysmally low level. For example, the use of tractors on the continent (excluding Egypt and Mauritius) is only 28 per 1,000 hectares compared with an average for Bangladesh, Brazil, China, India, Pakistan, the Philippines, South Korea, Thailand and Vietnam of 241 (Ernst & Young 2011: 11). Given the prevalence of animal diseases such as those borne by tsetse in several African countries, machines, where affordable, are preferable to animal traction for reinvigorating agricultural productivity. The Indian Sonalika Group's International Tractors Limited (ITL) has sales in 32 African countries of farm machinery required for 'harvesting, sowing and tillage'.<sup>3</sup> ITL manufactures fuel-efficient tractors with Japanese partner Yanmar and hence exports advanced technology products to Africa.

As an illustration, in Sierra Leone Sonalika equipment has been used for rice cultivation. Two years after the introduction of the machines, the country reported increased productivity. More recently, the Cameroon government judged Sonalika tractors as being the most suitable for Cameroon's agricultural conditions. The company has shipped 1,000 tractors plus 4,225 implements to Cameroon, one of the largest orders of tractors and agricultural implements to date, for the cultivation and harvesting of maize and rice. This was made

possible by an LOC for US\$37.65 million to the government of Cameroon (*Times of Africa* 2012; Sonalika International Tractors Ltd 2012).<sup>4</sup>

Farm equipment and tractors are also supplied by M&M and Tata Africa. M&M have introduced their fuel-efficient multipurpose machines and transformed the way in which African farmers use tractors. Using a single machine they can cultivate, plough, harrow, haul and do many other things at a low running cost. Their major market is West Africa, specifically Nigeria, Mali, Chad, Gambia and Ghana. Egypt is also a major buyer of Mahindra tractors, which are predominantly used in the Nile Valley, Aswan, Asyut, Al-Menia and Delta regions for cultivating, ploughing, haulage and harrowing on cotton, rice, wheat, sugar cane, citrus and various cereal farms (EXIM Bank 2010).<sup>5</sup> The company has set up a tractor assembly plant (Mali Tracteurs S.A.) in Mali that is financed through a concessionary loan under an EXIM Bank LOC of US\$27 million to the government of Mali. This loan is to be used for rural electrification as well as setting up the tractor assembly plant. Fuel-efficient tractors have lowered the cost of production and represent a transfer of modern technology to user countries in North and Southern Africa, including Angola, Sudan and Morocco.<sup>6</sup>

The very first Indian company active on the continent was the Tata Group, which set up Tata Zambia way back in 1977.

The agricultural division, Makumbi Agricultural and Technical Services Company Ltd (MATCO), set up in 1982, distributed Swaraj tractors from India, and other agricultural and irrigation equipment. Tata Farms and Foods was established in 1989 and grew field crops such as maize and wheat, vegetables and roses on a 500-hectare plot at Ngwerere, near Lusaka. (Agrawal 2005)

Today the farm is leased out, but Tata has a strong presence in the commercial vehicle sector – such as trucks for transporting agri-produce – as well as in chemicals, hospitality, iron and steel, ICT and other areas. Cotton in West Africa is yet another sector to which Indian private and state enterprises are contributing, potentially catalysing output and export earnings. Therefore, through the sale of India's agri-products and services, African countries have gained access to farm technology and services that they do not have the capacity to produce at home.

*Transfer of technology and capacity building in cotton* At the second India–Africa Forum Summit (IAFS II) held in Addis Ababa in May 2011, the Indian government announced a technical assistance programme for cotton, to be implemented by the department of commerce and funded by the external affairs ministry. This was based on a request from Benin, Burkina Faso, Chad, Malawi, Mali, Nigeria and Uganda at the World Trade Organization and United Nations Conference on Trade and Development meeting in 2008. The programme was officially launched in March 2012. Its main objectives

are capacity-development interventions and technology transfers to enhance upstream and downstream capabilities in cotton and assist governments to design programmes aimed at improving the competitiveness of this sector over a three-year period, 2011–14 (IL&FS 2012).<sup>7</sup>

Cotton, the white gold, is one of the most important fibre crops and, despite serious competition from synthetic fibres, is preferred to them on account of people's increasing health consciousness. India is the second largest producer (after China) of cotton in the world, as well as an importer of the fibre.<sup>8</sup> Africa accounts for 10 to 15 per cent of global cotton production (Lucky Group 2011),<sup>9</sup> and some 20 million farmers in over 30 African countries depend on cotton for their livelihoods. In Central and West Africa, cotton and related activities involve about 6 million people and account for a large share of rural employment and poverty reduction (IL&FS 2012). The fibre is the most important agricultural export and constitutes a major share of export earnings in Burkina Faso (51 per cent), Benin (38 per cent), Chad (36 per cent) and Mali (25 per cent) (ibid.).<sup>10</sup> African countries have sought assistance in cotton production because productivity continues to be hampered by outdated techniques, low smallholder output, insufficient organic fertiliser, low-yielding plant varieties, insect infestations, unavailability of hybrid cotton and restrictions on the use of Bt (*Bacillus thuringiensis*) cotton. Ginning facilities are also outdated, resulting in poor recovery and fibre damage, with the result that 94 per cent of cotton is being exported in raw form, with only 6 per cent being converted into products (IL&FS 2012; Lucky Group 2011).

The Infrastructure Leasing & Financial Services Ltd (IL&FS) Cluster Development Initiative has been engaged as the project management agency for the implementation, overall coordination and monitoring of the technical assistance programme, while other institutions with competency in the value chain are also involved: the Central Institute for Cotton Research, Central Institute for Research on Cotton Technology and the Indian government's Directorate of Cotton Development. At the conclusion of the programme, intended project outputs in capacity building are: the training of over 600 scientists, technical and extension officials; capacity building for over 2,500 farmers, government officials and industry representatives; IT-enabled networks for crop improvement; infrastructure and skilled manpower development for the textile industry; and the design of a policy framework for host governments.

Private enterprise has also been assisting with capacity building in this sector in Sudan, where cotton is produced by smallholders and accounts for only 10 to 15 per cent of the area under cultivation. The Lucky Group, in collaboration with the Agricultural Research Corporation of the Sudan government, has undertaken projects to improve cotton yield. Specifically, six hybrid varieties as well as Bt cotton were introduced from India for trial at the Rahad research station in Sudan (Lucky Group 2011).

## Export-Import Bank of India in Africa

Many countries on the continent have received LOCs from the EXIM Bank to support the setting up of various projects by private and public sector Indian companies (EXIM Bank 2011). The government of India has undertaken a number of initiatives to identify potential areas of bilateral trade and investment, as well as focusing on the role of banking institutions in funding India–Africa projects, including in agriculture and related sectors. Among the initiatives are the Focus Africa Programme (2002–03), the annual India–Africa partnership conclaves (since 2005) and the IAFSS (New Delhi in 2008 and Addis Ababa in 2011). By mid-August 2012, EXIM Bank had approved a total of 157 LOCs, of which 111 have been channelled directly through African sovereign governments or via African regional institutions such as the PTA Bank (Eastern and Southern African Trade Development Bank) and the African Development Bank.<sup>11</sup> Africa accounts for over 50 per cent of EXIM Bank’s LOCs (see Table 4.4 and Figure 4.3).<sup>12</sup>

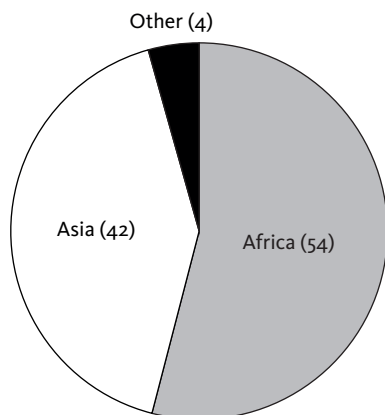
TABLE 4.4 Distribution of the Indian government’s LOCs among world regions (30 August 2012)

Region	Number of LOCs allotted	Value of LOCs allotted (US\$ million)	% of total value
Africa	111	4,270.925	54
Asia	27	3,288.738	42
Other	19	344.590	4
Total	157	7,904.253	100

Source: EXIM Bank 2012; [www.eximbankindia.com/loc.asp](http://www.eximbankindia.com/loc.asp)

Of these, a substantial number are used to support the agricultural and related sectors. Table 4.5 below provides further details of the LOCs extended between January 2010 and June 2012. Several of the allocations have been for the development of overall enabling infrastructure, for example hydroelectric projects, generation of solar energy, rural electrification and water development. Others have been more immediately focused on agriculture and related sectors, including support for the cultivation of rice, wheat and maize; production of compost; purchase of tractors, harvesters and irrigation pumps (for details, see Chapter 3); value addition to agri-products such as cotton ginning and spinning, and fish processing; and rehabilitating the sugar industry. Financing has also been provided for capacity building through vocational training of women, youth empowerment and building medical infrastructure.

External funding from India and other emerging economies has broadened



#### 4.3 Distribution of the Indian government's LOCs among world regions

Source: Compiled from EXIM Bank 2012; [www.eximbankindia.com/loc.asp](http://www.eximbankindia.com/loc.asp)

the financial resources available to countries in Africa, which are grappling with development challenges, budgetary deficits and curtailed funding from traditional partners, especially after the 2008 global crisis.

### Conclusion

It is clear that the countries that enjoy food security are those that have accorded a central place in their national policies to the agricultural sector and have designed strategies to achieve this challenging goal. The experience of the BRICS countries shows that 'one percentage growth in agriculture is at least two to three times more effective in reducing poverty than the same growth emanating from non-agriculture sectors' (Government of India 2012a: 1). Given that the agricultural sector in Africa employs over 65 per cent of the population, agro-based development will play a decisive role in poverty reduction and inclusive growth for years to come.

The evidence in this chapter demonstrates that India is a food-sufficient country and that about 96 per cent of shortfalls in certain commodities, mainly pulses and vegetable oils, are acquired through international trade on the global market. Despite the serious challenges that mar India's agricultural sector, the Indian case study also highlights the achievements in this segment. Most notably, the case of India underscores the importance of achieving national food self-sufficiency so that food aid cannot be used by donor countries as a bargaining chip to solicit African support for foreign policy objectives.

The analysis in this chapter indicates that India's engagement with the agricultural sector of Africa, through direct aid and private and public sector Indian investment, has helped lay a durable foundation for transforming African agriculture. The transfers of technology, finance and knowledge are contributing to enhanced human resources and capacity on the continent. Transfers of state-of-the-art irrigation, plant and seed technology, low-cost and



TABLE 4.5 EXIM Bank LOCs extended to African countries and regions (January 2010 to June 2012)

Country/region	Details
Angola	Two LOCs, for US\$30m and US\$15m for setting up an industrial park and textile project (cotton ginning and spinning) (July–September 2010)
Burundi	LOC of US\$80m for the Kabu Hydro Electric Project (January–June 2011)
Central African Rep.	Two LOCs of US\$20m and US\$39.69m for development of a mining project and two hydroelectric projects respectively (January–March 2012)
Chad	LOC of US\$40.32m for four projects: i) compost production unit; ii) rural electrification project (solar energy); iii) production unit for livestock feed; and iv) extension of spinning mill (addition of weaving and processing capacities) (January–March 2012)
Côte d'Ivoire	LOC of US\$30m for rice production programme (January–March 2010)
Democratic Rep. of Congo	LOC of US\$42m for the Kakobola Hydroelectric Power Project (July–September 2010)
Republic of Congo	LOC of US\$168m for financing the Ketende Hydroelectric Project (July–September 2011)
Djibouti	LOC of US\$70m for a rural electrification project (October–December 2011)
Ethiopia	LOC of US\$14m as an additional amount for completing a cement plant (January–June 2011)
	LOC of US\$213.31m, the third tranche of the total credit commitment of US\$640m, for financing sugar industry rehabilitation (October–December 2010)
	LOC of US\$91m, the fourth tranche for financing sugar industry rehabilitation (January–June 2011)
	LOC of US\$47m, the fifth tranche for financing sugar industry rehabilitation (April–June 2012)
Ghana	LOC of US\$21.7m for financing exports of equipment for improved fish harvesting, fish processing and waste management and a management support project (April–June 2010)
Kenya	LOC of US\$61.6m for power transmission lines (October–December 2010)
Lesotho	LOC of US\$4.7m for setting up a vocational training centre for youth and women (January–March 2010)
Malawi	LOC of US\$50m for financing: i) cotton processing facilities; ii) a green belt initiative; and iii) the One Village One Product Project (January–June 2011)
Mauritania (Islamic Rep. of Mauritania)	LOC of US\$21.8m for financing a potable water project and an agriculture development project (January–March 2010)
Mauritius	LOC of US\$48.50m for financing an offshore patrol vessel to be built by Garden Reach Shipbuilders and Engineers, Kolkata (January–June 2011)

Mozambique	LOC of US\$25m for financing rural electrification projects in the provinces of Cabo Delgado, Manica and Niassa (July–September 2010) LOC of US\$20m for enhancing rice, wheat and maize cultivation (January–June 2011) LOC of US\$13m for financing a solar photovoltaic module manufacturing plant (July–September 2011) LOC of US\$20m to the Nigerian Export-Import Bank for financing the export of goods and services from India (October–December 2011)
Nigeria	LOC of US\$60m, the second and final tranche (of US\$80m) for construction of the Nyabarongo Hydro Power Project by Bharat Heavy Electricals (January–March 2010)
Rwanda	LOC of US\$5m for financing the supply of medical equipment, furniture and other accessories to four hospitals (January–March 2010)
Senegal	LOC of US\$30m for the rehabilitation of facilities and addition of new infrastructure to supply potable water to six districts (January–March 2010)
Sierra Leone	LOC of US\$20m for setting up an information technology park (January–June 2011) LOC of US\$36.56m for the purchase of 723 vehicles from India (January–June 2011) LOC of US\$15m for rural electrification (October–December 2011)
Swaziland	LOC of US\$50m for part-financing the 120 MW Itzhi-Tezhi Hydropower Project (January–March 2010)
Tanzania	LOC of US\$50m for prefabricated health posts in Zambia (January–March 2012)
Togo	LOC of US\$100m to the ECOWAS Bank for Investment and Development (EBID) for financing the importation of various types of equipment, goods and services from India to the 15 member countries (Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo) (October–December 2010)
Zambia	LOC of US\$150m to EBID, for the same purpose (July–September 2011) <sup>2</sup>
ECOWAS <sup>1</sup>	

*Notes:* 1. ECOWAS = Economic Community of West African States 2. India's major export items to the ECOWAS region include 'pharmaceuticals and fine chemicals, machinery and instruments, transport equipment, electronic goods, cotton yarn fabrics, and primary and semi-finished iron and steel' (Investment & Technology Promotion Division n.d. [[www.indiabusiness.nic.in/trade/loc1.htm](http://www.indiabusiness.nic.in/trade/loc1.htm)])  
*Source:* EXIM Bank; EXIMUS Newsletters (January 2010–June 2012) at [www.eximbankindia.com/newsletter.asp](http://www.eximbankindia.com/newsletter.asp)

fuel-efficient tractors, water management skills and knowledge are helping African countries increase their agricultural productivity.

The private and public sector engagements on the continent have been financed by the concessionary LOCs extended to several countries in Africa. This has facilitated the purchase of agri-equipment and other services vital to building agriculture and agro-based industrial sectors. The deepening relations between India and Africa and the growing engagement between the two partners have the potential to further drive, and to transform, Africa's agricultural growth.

## **5 | Up for grabs: the case of large Indian investments in Ethiopian agriculture<sup>1</sup>**

Dessalegn Rahmato

### **Introduction**

The Ethiopian government has leased out huge tracts of land to investors in recent years. For this, it has attracted criticism from the world media and international activist organisations, which have drawn attention to the bonanza reaped by foreign capital and raised doubts about the merits of the programme and the benefits to the country. It must have been difficult for many in the international community to reconcile the image of the country ('Ethiopia means famine') with the colossal give-away of lands, of which the main beneficiaries are foreign investors (GRAIN 2012; Oxfam International 2011; Oakland Institute 2011b). Ethiopia is one of the poorest countries in Africa, beset by persistent food shortages and frequent famines and dependent on food aid from the international community. As recently as 2002–03, a severe food crisis threatened the lives of nearly 13 million people, and at present some 8 million peasants are supported by a safety net programme financed by Western donor agencies (Rahmato 2010). The government, however, claims that the leased lands are unused public lands and that their transfer to investors does not threaten the livelihoods of rural people. However, in many cases the evidence on the ground does not bear this out. The lands in question include arable land, pasture and rangeland, woodland and forest, wetlands, water sources and wildlife habitats, most of which are vital to people's livelihoods, and their transfer has been contested in various ways by the peasants, pastoralists and minority groups that have been affected directly.

What is taking place in Ethiopia must be seen as part of the response by countries and international capital to the global commodity crisis of 2007–08, during which there were severe shortages in the world food market accompanied by a dramatic rise in grain prices. This was a crisis that threatened many countries in the Middle East and Asia not ordinarily subject to food insecurity. The response was an unprecedented global land rush, in which private and sovereign investors from these and other countries went out to acquire land in so-called 'land-rich' countries in Africa and elsewhere for the purpose of growing food and biofuel crops for export. While some of the investors were driven by the profit to be gained, it is quite clear that there was a strong food

security element for many, who saw such investments as an opportunity to ensure access to food for their home countries. By the end of 2009, more than a dozen countries in Africa, including Ethiopia, had parcelled out millions of hectares of farm land to foreign capital on highly concessionary terms (see Cotula et al. 2009; von Braun and Meinzen-Dick 2009; World Bank 2011a).

In this chapter, I look at the extent of foreign capital penetration in the country's agricultural sector, the conditions under which this has taken place and the impact on the livelihoods of smallholders. The land investment programme is still under way and it will be some time before a clear picture emerges and we can gauge the full consequences. Therefore, this study should be taken only as indicative. It is based on information gathered from fieldwork in the Gambella and Oromia regions and on interviews with peasants, minority groups and public officials in communities there that have been affected by investor projects. I have also had interviews with public officials at federal and regional levels,<sup>2</sup> had access to primary documents and data from relevant public agencies, and made use of material from web sources as well as reports in the international and local media.

### **Policy shift: from peasant farms to large-scale agriculture**

Until recently, the government in power was strongly committed to smallholder agriculture, which it tried to support through a variety of programmes, many of them financed by donor countries and international organisations. This commitment was spelled out in a policy framework issued in the mid-1990s and subsequently elaborated in which it was established that the country would follow a rural-centred and agriculturally based development strategy (Assefa 2008). Under this framework, peasant agriculture was to provide the country with food self-sufficiency and also serve as the engine of growth for the whole economy. The state was to enhance this effort by providing new technology packages and improved farming practices, which were to be disseminated through an extension system and a network of development agents established at *kebele* level throughout the rural areas. Peasant agriculture was to provide any agricultural surplus not just for the food needs of the country but also for the needs of industry, as well as for the demands of the export market, which was almost entirely dependent on agricultural products. This essentially neoliberal policy did not envisage structural changes to the rural economy or reforms to the land system then in place. Rather, the success of the strategy was to be dependent on the uptake of new technologies by peasants and the increased effort of farming households. Thus, immense expectations were placed on the shoulders of smallholders, most of whom were burdened with deep poverty, persistent food insecurity and tiny and uneconomic landholdings (Rahmato 2009). No incentive was provided to them as part of the new strategy and any form of price subsidy for new technology inputs or other financial support mechanisms

was considered anathema. This approach was thanks to the ideology peddled by the World Bank and International Monetary Fund, which the government had endorsed wholeheartedly by the beginning of the period under discussion.

Some understanding of the landholding system and the structure of holdings is needed to get a clearer picture of the shift in agricultural policy we are discussing. Through various federal and regional legal instruments, the government has established a land system in which holders have only limited rights, which are conditional and subject to abrogation at any time. Landholders do not enjoy robust security of tenure, despite the recently concluded land certification programme. Land – both urban and rural – is state property and private ownership is not permitted. Land users (cultivators and pastoralists) have only use rights over the land in their care, which they cannot sell, mortgage or exchange in any way. The use right of holders is dependent on residence in a *kebele*, personal engagement in farming, ‘proper’ management of the land and other restrictive conditions that we need not discuss here. The government has the right to remove holders from the land if it decides that the land is needed for ‘public purposes’ or if it considers that the land will be more valuable if utilised by investors, cooperative societies or other public or private entities. Most peasant holdings are small and, according to many available estimates, nearly two-thirds of family farms are too small to produce food to sustain the family for a whole year (*ibid.*). The average holding in the country as a whole is less than 1 hectare, although in more densely populated areas and in the Southern Nations, Nationalities and People’s Region (SNNPR) *enset*<sup>3</sup>-based farming system, anyone who works half a hectare is considered fortunate. Moreover, until the end of the 1990s there was only a handful of large-scale farms, too few to be statistically significant. Therefore, in terms of holding structure, there was a de-concentration of landed property, with emphasis given to family farms and the self-labouring household. This holding structure was largely the result of the radical land reform of the preceding regime, which the present government had maintained. As we shall see below, this is now beginning to change.

The shift in policy in favour of large-scale agriculture and foreign investment occurred in fits and starts from the end of the 1990s, but was finally given institutional grounding in the early 2000s. It subsequently became an important agenda for change in 2007–08. The first indication of this impending shift may be found in a document published in 2001 by the government in which its rural development policy and strategies are set out. While emphasis was still placed on the critical role of small-scale farmers, the document established an important role for large-scale farming enterprises and foreign investors. The document speaks of an inevitable ‘role change’ from peasant cultivation to capitalist farming, from small entrepreneur to large foreign investor. The main arguments for the anticipated change are expressed thus:

[T]here is a direct correlation between agricultural growth and the role of private investment in the sector. This in turn means that assuming the objective of accelerated agricultural development is achieved; it is likely that there will be a role change. The key actor in the sector's development will be relatively large-scale private investors and not the semi subsistence small farmers ...

There are two investment areas that seem to be particularly suited for foreign investment in the agricultural sector. The first is to develop here-to-for [*sic*] unutilized vast land with high irrigation possibility ... The second investment opportunity is to produce high-value agricultural products (e.g. flowers, vegetables) where the scale of operation could be small or medium ... The country's demand for participation in both areas is immense, and assurances are given that government institutions at all levels will do their level best to facilitate and assist foreign investors.

While ... underlying [*sic*] the importance of encouraging domestic private investment through well-conceived incentives, the focus of attention should be on attracting foreign investors. Historically, efforts made to attract foreign investment are almost exclusively directed towards non-agricultural sectors. This needs to change if Ethiopia is to achieve its agricultural objectives. (MOFED 2003)<sup>4</sup>

Other public documents also allude to the emerging 'role change' in various ways. The government's last poverty reduction document, *Plan for Accelerated and Sustained Development to End Poverty* (PASDEP), the drafting of which began in 2004, states that one of the eight pillars of the government's development strategy is 'a massive push' for accelerated growth, which is grounded on two policy thrusts: the commercialisation of agriculture and accelerated private sector development (MOFED 2006).

The assumptions behind this policy shift are several: i) the country has reached a stage where it should invite foreign capital to invest in the agricultural sector; ii) there are 'vast unutilised' lands with 'high irrigation potential' in the country; iii) attracting foreign capital (as opposed to domestic) should be the focus of government efforts; and iv) foreign investors should be allowed to engage both in larger-scale and smaller but high-value and technology-based farm enterprises. Domestic investors will be given a role but they are seen as less effective partners because they have neither the capital nor the technology to meet the government's expectations.

### **The turn to foreign capital**

The turn to large-scale agriculture was accompanied by several policy initiatives to attract foreign capital and to enable it to play a major role in agriculture. Of these, the most significant was the investment proclamation of 2002 (amended in 2003), which was subsequently augmented by regulations for

investor incentives largely designed to encourage the flow of investment into the country. The investment legislation is very generous to foreign investors. The capital requirements for foreign businesses wishing to invest in the country range from zero (for those that export 75 per cent or more of their output) to US\$25,000 (if they are a joint venture with domestic investors) to US\$100,000. Foreign investors have the right to fully repatriate in convertible currency the profits and dividends, principal and interest payments on external loans, and proceeds from technology transfers, as well as asset sales in the event of liquidation of the investment and proceeds from the transfer of shares or ownership to a domestic investor. Expatriates employed in an enterprise may remit salaries and other payments accruing from their employment in foreign currency. Investors, foreign or domestic, are guaranteed against expropriation or nationalisation except as required by the public interest. If this should happen, full compensation will be paid at the prevailing market value and foreign investors may repatriate this in hard currency (Federal Democratic Republic of Ethiopia 2002; 2003a).

Subsequent regulations issued by the Council of Ministers (Federal Democratic Republic of Ethiopia 2003b; 2008) provide attractive financial incentives. Any investment project, foreign or domestic, engaged in agriculture and other sectors that exports more than 50 per cent of its output is eligible for income tax exemption for five years or more, while projects exporting less than this are entitled to only two years' exemption. Investors are also allowed to import, free of customs duty, all capital goods, construction materials and spare parts for the establishment or upgrading of their enterprise. In brief (and this is an important point for our discussion) strong encouragement is given to investors who *export* their products: the greater the planned exports, the greater the benefits. The shift towards large-scale agriculture is thus driven by the priority of exports and foreign earnings and ignores the need for domestic food security.

What are the expectations of the government and how exactly is foreign capital to benefit the country and contribute to agricultural development? A clear and succinct statement defining the government's objectives is difficult to come by, but the following benefits are frequently alluded to in public documents as well as in speeches made by senior officials (MOFED 2003; MOARD 2009e).<sup>5</sup> Foreign investment is expected to: i) enable the country to produce export crops and hence increase the country's foreign earnings, and to expand production of crops needed for agro-industry such as cotton and sugar cane; ii) create employment opportunities in the localities concerned; iii) benefit local communities through the construction of infrastructure and social assets such as health posts, schools and access to clean water; iv) provide the opportunity for technology transfers; and v) promote energy security.

As we shall see, so far there is no evidence that many of the objectives



have been met. On the contrary, the evidence we have been able to gather, both through our own fieldwork and from written documents, indicates that at present the damage done by the projects outweighs the benefits gained.

### **Land and foreign capital**

Both the federal government (through the Ministry of Agriculture and Rural Development or MOARD) and the regions began actively promoting large-scale land investments and seeking foreign capital soon after the controversial national elections of 2005. By 2007, a number of promotional documents had been prepared, and some efforts had been made to identify lands said to be suitable for large-scale projects and foreign investors.<sup>6</sup> The transfer of land to investors had in fact been going on since the second half of the 1990s, but the investors involved were predominantly local and the lands leased out were small in size, frequently less than 500 hectares. Foreign investors began to show keen interest following the enactment of the investment proclamation and as the success of floriculture in winning market share in Europe and elsewhere became apparent in the mid-2000s. The demand for land by investors grew sharply from 2006, and in 2008 there was what amounted to a mad rush to get land, with many applicants requesting large estates, often exceeding 10,000 hectares. More than one-third of land allocated to investors, including foreign ones, by the regions from the late 1990s to 2008 was handed out in the latter year.

In that same year, the government designated MOARD as the lead agency for large-scale land deals, with wide-ranging responsibilities including approval of investor projects, signing contracts, monitoring environmental impacts and oversight. MOARD was to receive and administer all consolidated investment lands of 5,000 hectares or more from the regions. These lands were to be put into a federal land bank to be accessed by investors through MOARD. While all aspects of the land deals were to be concluded by and through MOARD, income from the transactions, namely land rent, income tax and other payments, was to be utilised for the benefit of the regions concerned. Table 5.1 below shows the lands ‘voluntarily’ transferred by the regions to MOARD between 2008 and 2010.

It is not clear from the available documents how much land has actually been transferred to investors to date, and it is quite likely that the government itself does not have full information on the matter. According to a database prepared by MOARD, some 8,000 applications for land, totalling over 3 million hectares, were approved by the regions between 1996 and 2008. The great majority of investors held the land idle (many simply did not have the resources to put the land to use) and some used the land for purposes for which it was not approved. The records show that slightly less than 20 per cent of applicants had started project implementation and operation by late 2007. Of the 8,000

TABLE 5.1 Land available for investment with the Federal Land Bank of Ethiopia (2010)

Region	Land in hectares
Afar	409,678
Amhara (not yet transferred)	420,000
Benishangul	691,984
Gambella	829,199
Oromia	1,057,866
Southern Nations, Nationalities and People's Region	180,625
Total	3,589,352

*Source:* MOARD 2009c; 2010; interviews with Oromia Land and Environment Bureau

approved investment projects, more than one-third are small enterprises holding 100 hectares or less (MOARD 2009a). On the other hand, between 2003 and 2009 a few hundred foreign investors were granted land either on their own or as part of joint ventures with local businesses, with total holdings amounting to over 1 million hectares. As a rule, the lands allocated to foreign investors are much bigger than those to domestic investors, for the reasons given above. Moreover, in 2009 and 2010, close to 500,000 hectares were allotted to investors both by MOARD and the regions. In brief, the available evidence suggests that, by the end of 2010, a total of 3.5 million hectares of land had been committed to investors, of which over 1 million hectares were transferred to foreign businesses (World Bank 2011a). In almost all cases, the investors' interest is to use the land to grow food and energy crops for the export market, together with agro-industry crops, such as sugar and cotton, both for the domestic market and for export.

The new five-year Growth and Transformation Plan (GTP), launched in the last quarter of 2010 and expected to run from 2011 to 2015, envisages that agriculture will grow at the rate of 14.9 per cent annually, and for farm output to double by 2015. This rapid growth will be made possible in part by the strong role the private sector, especially foreign capital, is expected to play, and for which the government will provide all necessary support. The government envisages that a total of 3.3 million hectares of land, in addition to land already given out, will be leased to investors in the GTP period (MOFED 2010a; 2010c), and recent statements by senior government officials indicate that about half of this is expected to be taken up by foreign investors. Therefore, by the end of 2015, the total land transferred to investors (that is, all the land leased out before and after the GTP) will exceed 7 million hectares, of which

some 3 million will be held by foreign capital. On the other hand, in the same period, land under peasant production is expected to increase from 13.3 million hectares in 2011–12 to 14.7 million hectares in 2014–15. Thus, large-scale agriculture will account for an area about half the size of the lands under peasant production and equal to nearly one-third of total cultivated land in the country. Clearly, investor projects are set to become a dominant force in the rural economy within a short period of time.

Most of the investments are concentrated in three large regions – Benishangul, Gambella and Oromia – but a few are also to be found in the SNNPR areas. The first two regions have sparse populations and are said to possess abundant unused land suitable for large investment projects, but the reality on the ground does not bear out these claims. Gambella, where we have done fieldwork, possesses some of the largest wildlife resources in Africa, and many of the animals engage in seasonal migration across the border to the Sudan and back, as well as within the region itself. There is also a large national wildlife park set up in the 1970s, as well as several protected areas. The lands given out to investors lie within the park, protected areas and other wildlife habitats, thus depriving the animals of access to their habitual feeding grounds and blocking their free migratory movement (Trans-Frontier Conservation Initiative Task Force 2010b). These rich wildlife resources are now seriously threatened, and unless urgent measures are taken, the region and the country will lose an asset far more valuable than what private investment can possibly offer. In the case of Oromia, much of the leased land consists of pasture and rangeland, woodland and wetland, much of which is vital to local populations, who depend wholly or in part on livestock raising for their livelihoods. Occasionally, investors have been given forest land, which they have cleared for crop planting in the face of protests by local communities.

*Indian investments* The foreign investors now active in the country are many and diverse, but, unlike in the past, European or American capital is not playing a dominant role at present. On the contrary, while considerable investment is flowing into the country from the Middle East, the most aggressive and the most numerous investors are private companies and interests from India. At present, over 35 firms from that country have acquired extensive lands in various regions, including Benishangul, Gambella and Oromia. This figure does not include Indian investments in floriculture, where they have a strong presence. The biggest holding by an investor in the country belongs to Karuturi, a company based in Bangalore, India, which has leased 300,000 hectares in Gambella region and 11,000 in Bako *woreda* in Oromia. Indian investors hold the largest allotments of land in the country so far, although the full extent of their holdings is difficult to determine because of poor record keeping and lack of data. A partial list of the larger Indian acquisitions is given in Table

5.2 below. The government seems to be particularly well disposed to Indian capital and is keenly encouraging it. Several high-level missions have visited India to attract investors, and local media reports quote the Ethiopian minister of agriculture as saying on a recent visit to India that half of the total land earmarked for investment in the GTP – about 1.8 million hectares – could be set aside for Indian investors if there is sufficient interest on their part.<sup>7</sup>

Based on data reported in government media and the independent press, there has been a dramatic increase in Indian investment in the country in the last five years. From a lowly figure of about US\$400 million in 2005, investment grew to nearly US\$5 billion in 2011. According to Ethiopian government sources, the amount is expected to grow by US\$1 billion every year. There are now over 500 Indian firms in Ethiopia, and while many of them are in the manufacturing and engineering sectors, a sizeable number are engaged in agriculture, particularly food and biofuel production, sugar estates, floriculture and dairy processing. In contrast, by the end of 2009 China had invested US\$1 billion in the country, mostly in manufacturing and construction, and it has only a limited presence in the agricultural sector.

I have already noted some of the incentives provided to foreign capital, but there are also others, which Indian investors have found particularly appealing. These are, first, the government's assurances that land is plentiful in the country and there is virtually no limit on how much land investors may ask for, and, second, the low rental fees charged for land leased to investors. Rents are ridiculously low by any standard: indeed, one Indian investor who had just been given a sizeable area of land in the west of the country described them as 'throw-away prices'. Investors are expected to pay an annual rate ranging from less than US\$2 to less than US\$10 per hectare, depending on location and access to irrigation, transport and basic services. In contrast, rents in the Punjab area of India, for example, vary from 25,000 to 30,000 rupees (approximately US\$550 to US\$670) per hectare per year.<sup>8</sup> Many Indian and other foreign investors have been overjoyed at the rates as well as the generous financial incentives for which they are eligible. The rents are so low that investors are encouraged to request more land than they can possibly manage, and many leave the land idle since they suffer no adverse consequences as a result. There have been suggestions by MOARD and others that rents should be increased, but many regions have yet to make firm decisions on the matter.

Evidence from our fieldwork in Gambella and Bako *woreda* as well as recent studies by environmental groups in the country paint an unflattering image of Indian managers running investment projects (Kelbessa et al. 2009; Heckett and Aklilu 2008). Indian projects pay very low wages, and their staff are insensitive to local custom and cultural practices and hold local employees in low esteem, often treating them disrespectfully. Some local employees we interviewed observed that the projects use poor farming practices, in part

TABLE 5.2 Indian agricultural investments in Ethiopia (2007–12)

Investor	Region	Investment type	Land size (hectares)	Capital registered (million birr)	Land rent per year (million birr)
Ruchi	Gambella	Soya bean	25,000	1,451	2,775
White Field	SNNPR	Cotton	10,000	32	1,580
BHO	Gambella	Rice and sesame	27,000	918	2,997
Sannati	Gambella	Rice	10,000	160	1,580
Verdanta	Gambella	Tea	3,000	631	0,334
Shapoorji	Benishangul	Biofuel	50,000	984	7,170
CLC Spentex	Benishangul	Cotton	25,000	1,117	5,549
Karuturi	Gambella	Palm oil and rice	100,000	2,110	2,000
	Gambella	Rice and palm oil	300,000		
	Oromia	Rice and biofuel	11,000		
Lucky Exports	Gambella	Tea	5,000		
Sunrise Industries	Oromia	Food crops	15,000		
Vatic	Oromia	Biofuel	20,000		
Kanan Devan Hills	SNNP	Tea	10,000		
Emami Biotech	Oromia	Biofuel	80,000		
Chadha Agro	Oromia	Sugar and biofuel	122,000		

*Source:* Gambella Investment Commission; MELCA Mahiber 2008; local press; Ethiopian Agriculture Portal, Ministry of Agriculture (MOARD)

because of lack of knowledge of local conditions, about which management is unwilling to seek information from employees or other knowledgeable people in the community.

### **The balance sheet**

As noted earlier, it may be too early to pass judgement on the consequences of the government's policy shift towards large-scale farms and the flow of foreign capital into the agricultural sector. The fact that both are taking place at a very rapid pace and under circumstances dictated by external pressures does not bode well for the future of Ethiopian agriculture and certainly poses a serious threat to family farms and peasant livelihoods. The most visible outcome at present is the re-concentration of land in the hands of a small group of domestic moneyed elites, foreign capitalists and state bureaucrats. In a way, the programme of land investment will return the country to the time of the imperial regime, when a minority of propertied elements – landed nobility, local gentry and urban bourgeoisie – owned the greater portion of the country's agricultural land. This grossly unjust agrarian system was abolished as part of the radical reforms of the military government, the Derg, which brought about the distribution of the land, parcelled out in small plots, to farming households under the framework of public ownership (Rahmato 2009). The assumption behind the new open-door policy to foreign and domestic capital is that large-scale agriculture will be more efficient and more productive, bringing great gains in food production and greater earnings of foreign exchange. However, the evidence from other countries does not confirm that large operations are invariably better than small ones.

MOARD, at the federal level, and the regional investment commissions are responsible for signing contracts with investors, monitoring investment projects and ensuring that contract obligations are not flouted. As is clear from our findings in the field and from interviews in Addis Ababa, however, none of these bodies has the technical or human resource capacity to carry out the two important tasks that will help to make investors responsible, namely monitoring and oversight. The contract agreements in force do not place heavy obligations on investment projects. On the contrary, investors are free to choose what crops to grow and where to market what they have grown, without any interference from their hosts. They are not obliged to supply the local or national market: indeed, they are strongly encouraged to export most or all of their products, as we saw earlier. There are no provisions in the contracts aimed at meeting the food security needs of the country. Moreover, project managers have no contractual obligations to provide social services to the communities concerned or invest in basic infrastructure. In fact, in a number of instances it is the government that constructs some of the infrastructure, such as roads and irrigation schemes, used by the projects.

One item common to almost all contracts is the obligation on projects to plant native tree species on at least 2 per cent of project land. However, this will be of limited benefit since more trees and vegetation will be destroyed by the projects during land clearance. The environmental impact assessments conducted by the projects as part of their acquisition of land are also meant to ensure that land management practices employed by them do not damage the environment or the land. However, many of our informants at the two sites we visited considered the land clearing that projects are currently undertaking as being destructive of the natural vegetation, which, they say, is leading to the loss of natural resources and the exposure of the land to serious soil erosion.

Most of the community residents we interviewed in Gambella and Bako were not convinced that anything good would come of the transfer of their land to outside investors. On the contrary, respondents expressed the fear that destruction of natural vegetation through land clearance, the closing off of access to water sources and the loss of woody vegetation and wildlife assets will bring social and economic hardship to them and their families. There were even some local officials, in Gambella in particular, who saw little benefit to communities, since in their view what was produced by the projects was destined for export and there would be nothing left to benefit the local market. Gambella is not self-sufficient in food: indeed, for several months of the year there are food shortages, which can become severe if there is a drought, a not infrequent occurrence. On such occasions, families depend on forest resources for food and income. The following response by one of the women interviewed in a village in Gambella expresses the general sentiment of many, and especially of women, in the community:

Two years ago, for example, there was a severe shortage of maize because of the drought. We managed to survive the hunger that ensued because we were able to collect roots and other edible plants from the forest. We were able to eat because of the forest. Since the forest has been cleared, I do not know what we are going to eat if there is another food shortage. When there is a food shortage it is we women and our children who suffer most because the men go to the towns to look for daily labour. In the past we depended on the forest to get food but now that the forest has been cleared I fear that our children will die of starvation. Another thing ... in the future the private investors may ask us to buy the wood and grass that we used to get from the forest for free. In our tradition it is women who collect grass for house building, but now there is a shortage of grass [because of the clearance by the project] and wood is also scarce; the men bring the wood from long distances ... They say the river will be diverted for the benefit of the project farm; if this is the case, we will be confronted with a water shortage, and also fish will disappear ... Therefore we are not happy with the coming of the project. In brief, the investors will not

provide any benefits to us; they have come for their own interest. (Aryat Oujolu, Turkodi sub-*kebele*)

The land deals were conducted and property transferred without consultation or consent; all our informants at both sites confirmed that they had no knowledge that property in their locality had been leased to investors, and many said that they would have opposed the plan if they had been consulted. Indeed, the criticism voiced by informed opinion here and in the country is that the investment programme lacks transparency and accountability. Moreover, in Gambella, which has attracted a large number of foreign and domestic investors, the regional authorities have launched a resettlement programme to relocate rural people in designated villages and communities. All our respondents in the villages where we interviewed them said that this was meant to move them away so that the land could be given to investors. A similar relocation programme has been announced in the Benishangul region, which, like Gambella, is host to a large number of investors.

There are no formal or informal obligations on the part of investment projects to contribute to the food security needs of the country. The contracts signed by investors and the business plans approved do not contain provisions requiring projects to supply the local market, whether as a matter of course or under emergency circumstances. As has been noted above, there is a strong food security element in the ongoing global rush for land, particularly in Africa, although we should not ignore the opportunity for high profits to be gained from exports to the world market at a time of relatively high food prices, as they have been in recent years and are expected to remain for a long time to come. One reason why Middle East investors are keen to acquire land in Africa, including in Ethiopia, is to grow food crops for export to their home markets. Indian companies are rushing to acquire land in Ethiopia partly for their own country's food needs and partly for the export market. It is thus paradoxical that the government of one of the most vulnerable countries in the world is handing out vast land and water resources to foreign investors to help the food security efforts of their home countries, or to gain profits for their companies, without adequately safeguarding or taking into account the food security needs of its own people.

To a large extent, the government's objectives in promoting large-scale investments have not been met, nor are some of them likely to be met under the present circumstances. There is, for example, hardly any technology transfer at the moment. The projects are operated using a high level of technology, but this is not transferable to or affordable for smallholders. Indeed, large-scale agriculture is managed quite differently from family farms, and there is no meeting ground between the two in the present policy environment. As we have seen, and as some preliminary works have already suggested (Kelbessa



et al. 2009; Heckett and Akilu 2008), many projects have made scant social investments for the benefit of the communities around them. Moreover, since foreign investors are allowed to raise up to 70 per cent of their operational costs from local sources, and since their export earnings may be repatriated fully, it is difficult to see how the government is expected to gain much hard currency. Furthermore, the disproportionate favouring of foreign capital is counterproductive in that it obstructs the growth of a vigorous local entrepreneurial class, and, in the long run, is bound to lead to economic dependency. Experience in other countries shows that domestic capital, under proper regulation, is more likely to act in ways that are socially responsible than its foreign counterpart.

The programme of land investment the government is eagerly promoting and the bonanza offered to foreign capital will have far-reaching consequences. It is therefore important that there is informed debate on the subject within civil society, between concerned citizens and among the public at large in Ethiopia. The emerging new agricultural system will marginalise small farmers, herders and minority groups, create opposing social classes and widen the gulf between the haves and the have-nots in rural society. Capitalist investors, especially foreign ones, will be driven solely by the profit motive and the need to supply the export market. This will mean adopting systems of land management, for example industrial forms of mono-cropping, that will not be environmentally friendly and in the long term will leave the land and ecosystem exhausted and unusable by future generations.

## **6 | Indian agricultural companies, ‘land grabbing’ in Africa and activists’ responses**

Rick Rowden

### **New trends in global ‘land grabbing’**

Recent years have witnessed an unprecedented increase in foreign direct investment (FDI) by international companies seeking to lease or purchase large tracts of agricultural land in developing countries. The increase in the trend has been striking, from a previous average annual increase in global agricultural land use of about 4 million hectares before 2008 to tens of millions of hectares leased or purchased just since 2009, with about half the deals occurring in Africa (Oxfam International 2011; World Bank 2011a). In April 2012, the Land Matrix Project, a global network of 45 research and civil society organisations, released the largest database to date on these types of land deals, gathering data from 1,006 deals since 2000 and covering 70.2 million hectares around the world. The data show that the bulk of these acquisitions have taken place between just 2008 and 2010 (Worldwatch 2012). The major factors driving this steep increase include new international markets for biofuel production; increased demand for animal feed owing to growing international meat consumption; and asset price speculation as institutional investors have come to view agricultural land in developing countries as a new commodity (De Schutter 2011; GRAIN 2011; 2012; Oakland Institute 2011a).

Beyond traditional business and commercial goals, however, another factor is driving the trend. This is increased concern about national food security among a set of wealthy and emerging market economies such as China, Kuwait, Saudi Arabia and South Korea, which are increasingly dependent on food imports and face limited arable land or water at home. Such countries have been developing ‘food security strategies’ that will enable them to avoid dependence on volatile global markets. To this end, they have been establishing programmes to outsource their domestic food production by having their agricultural firms go abroad to lease land in Africa and elsewhere for the express purpose of producing food that can be shipped home for domestic markets.

India has also recently joined the trend. Although it arrived on the scene relatively late, by 2012 it was among the top ten countries involved in the large-scale land acquisitions, according to Land Matrix Project data. In just a few years, India had acquired around 3.2 million hectares in East Africa,

mainly in Ethiopia and Madagascar, and 2.1 million hectares in South-East Asia (Indonesia and Laos). Together, foreign investors from Brazil, India and China accounted for 16.5 million hectares, or around 24 per cent of the total hectares sold or leased worldwide during the recent dramatic increase. Interestingly, India is also among the top ten countries whose land has been acquired by other nations, with 4.6 million hectares of Indian land having been acquired by foreign investors since 2000 (Worldwatch 2012; Nandi 2012).

The sudden and sharp rise in the number and size of the land deals has raised many concerns. The trend has deepened fault lines within a set of controversial issues, ranging from the costs and benefits of foreign investment and the best models for commercial agriculture in developing countries to how foreign investors should best be regulated and the civic obligations of citizens to rein in the excesses of their national corporations' behaviour overseas. Networks of national and international human rights groups and advocacy associations for small-scale farmers have raised a number of concerns and have referred to the trend as 'land grabbing' by foreign investors and speculators. Such critics have pointed to a systemic lack of due process, prior informed consent and adequate compensation for local peoples, who have often been displaced in the process across many countries, particularly in Ethiopia, Uganda, Madagascar and other countries with poor records of governance.

Such concerns have been raised by many research institutes, scholars and environmental and human rights organisations, including GRAIN (2012; 2008), the Oakland Institute (Oakland Institute 2011a), Friends of the Earth (FOEI 2010) and Oxfam (Oxfam International 2011), and have given rise to several critical media reports. Columbia University economist Jeffrey Sachs described the agricultural land acquisitions as 'power grabs':

The rise in food prices is leading to a land grab, as powerful politicians sell foreign investors massive tracts of farmland, brushing aside the traditional land rights of poor smallholders. Foreign investors hope to use large mechanized farms to produce output for export, leaving little or nothing for the local populations. (Sachs 2011)

Documented human rights abuses and forced displacement of small-scale farmers to enable the land deals by foreign investors have been referred to as a form of 'accumulation by dispossession' (Harvey 2006; Vadala 2011). David HILLAM, deputy director of the United Nations' (UN's) Food and Agriculture Organization (FAO), was perhaps the highest-profile figure to first raise concerns about the trend. At a conference in Washington in 2009, he cited labour issues, ecological impacts, rights abuses in the context of weak domestic governance and a lack of beneficial technology spillovers for domestic firms. Many of these criticisms stand in stark contrast to the purported benefits for citizens that governments and investors originally claimed would result from the ventures.

On labour issues, concerns have been expressed about the numbers of new jobs created by the investments for the local workforce (since much of the work will become mechanised), the quality of and financial compensation for such jobs, and working conditions and labour rights for workers. Another concern relates to the fate of many more subsistence farmers, who lose access to land but do not get new jobs (Bagchi 2009; Mihretie 2010; Goswami 2010; Dawit 2010; Vadala 2011; McLure 2009; GTZ 2009; *Le Monde* 2009).

Ecological concerns include the use or overuse of water by the new corporate farms, particularly in the context of future water depletion and diversion of water sources from the surrounding areas. A further issue is pollution and soil degradation from highly intensive chemical use. Critics also point to a wide and growing body of research that is critical of the ecological impact and unsustainable nature of large-scale corporate farming based on monoculture, as opposed to an alternative, smaller-scale, agro-ecological approach based on sustaining biodiversity and local community control (Altieri 2011; Worldwatch 2011; Byerlee 2009; Von Braun and Meinzen-Dick 2009; Cotula et al. 2008; Haralambous et al. 2009). The policy implications of this research are that improved support for smaller-scale, more biodiverse and community-controlled models of agriculture could be more efficient in increasing production and supporting environmental sustainability than the large-scale corporate model (De Schutter and Vanloqueren 2011: 33–44; FOEI 2010). Yet the foreign investors signing the largest land deals are replacing small-scale subsistence farming with the corporate agriculture model.

Also questioning the efficacy of the corporate agriculture model has been Olivier De Schutter, the UN's special rapporteur on the right to food. He has noted that the initial attraction of supporting large-scale land investment arose from the belief that addressing hunger was dependent on increased food production, and that long-term chronic underinvestment in agriculture in many developing countries had led to food scarcity. This in turn gave rise to the popular conclusion that if private investors could be lured into the agricultural sector, they should be encouraged to stay. However, according to De Schutter:

both [this] diagnosis and remedy are incorrect ... Hunger and malnutrition are not primarily the result of insufficient food production; they are the result of poverty and inequality, particularly in rural areas, where 75 per cent of the world's poor still reside. (D'Almeida 2011)

The policy implications are that reducing poverty and inequality, particularly in rural areas, by addressing issues of social exclusion, rights violations and lack of accountability may be a more efficient way to improve food security than is offered by the large-scale foreign investor model. Political and policy improvements to ensure that citizens can exercise their rights and that government is held accountable for enforcing such rights are the more political

aspects of improving food security. Yet the fast-paced momentum of land acquisition seems to leave little room for the needed and much slower-paced governance improvements.

On rights abuses, serious concerns have been raised regarding the lack of prior informed consent by local subsistence farmers displaced by new large land leases, and the lack of effective political recourse for the displaced. Such concerns have been particularly acute in countries such as Ethiopia and Madagascar, which lack meaningful democratic procedures or social accountability mechanisms for government (Metho 2010; *Ethiopian Review* 2011; Afrol 2011; Rakotondrainibe 2011; Goswami 2010; *EchoGéo* 2010: 2–17).

With regard to beneficial technology spillovers, although such benefits may be occurring, there is little evidence to date that foreign agricultural firms have effectively transferred new agricultural technologies to domestic farmers or have engendered other beneficial links to domestic firms. Partly because of the recent nature of investments and partly because of lack of transparency and accountability in many projects, there is no adequate documentation yet on the extent of beneficial spillovers into the domestic economy.

Proponents of the investments argue that they provide a number of benefits: capital inflows, technology transfers leading to innovation and domestic productivity increases, improved infrastructure, upgrading of domestic production, quality improvement, income and employment creation (including for local input and service suppliers), export earnings, and a possible increase in food supplies for the domestic market and for export. Indeed, investments in agriculture should be able to boost food security (Hallam 2009).

However, a major concern is that these benefits will not materialise if investments result in an enclave of advanced agriculture in a 'dualistic system' with traditional smallholder agriculture, particularly if smallholders cannot attain this advanced agriculture. Studies on the effects of FDI on agriculture show that such benefits do not always come about. These studies catalogue concerns regarding highly mechanised production technologies with limited employment-creation effects; dependence on imported inputs and hence limited domestic multiplier effects; adverse environmental impacts of production practices such as chemical contamination, land degradation and water depletion; and limited labour rights and poor working conditions. At the same time, there is also evidence of longer-term benefits such as improved technology, product quality and sanitary and phytosanitary standards. In considering the question of benefits, it is therefore important to take a comprehensive view (*ibid.*).

### **The role of India in the global 'land grab'**

In recent years, many Indian agricultural companies have participated in the land rush. They include Allied Chemicals, AVR Engineering, BP Jewellery, Kankaria Group, Karuturi Agro Products, Kommuri Agrotech, KSR Earthmovers,

Nelvo International and Surya Electrical, Ruchi Soya, Shapoorji Pallonji and Company, and Emami Biotech, which have either leased or bought large tracts of land in Africa. Estimates suggest that as many as 80 Indian and Indian-owned companies have invested in land in Ethiopia, Kenya, Madagascar, Mozambique and Senegal (see Chapter 5).

This increase in overseas agricultural investments is just a small part of the broader increase in outward FDI by Indian companies over the past decade, following a series of liberalisations of inward and outward FDI that were part of wider free market reforms begun in the 1990s. The reforms enabled Indian firms to increasingly raise investment capital abroad and through mergers and acquisitions with foreign private equity firms to go on international buying sprees. Today, India's international companies invest across a wide range of sectors and countries, and, quite unusually for a developing country, more than half of India's outward FDI is invested in advanced economies.

Several factors are driving India's recent efforts to outsource food production. Although the country is, by and large, food self-sufficient today, oilseeds, pulses, sugar and cashew are the major agro-imports. The government is increasingly concerned about ensuring long-term food security based on the growing dependence on certain food imports and in light of the diminishing groundwater tables at home (see Chapter 4). Given limited farmland and a rapidly increasing population, India's national food grain production has been more or less stagnant for a decade. Imports of pulses dropped in 2010–11 to 2.69 million tonnes from 3.51 million tonnes in 2009–10 because of a bumper crop. However, imports are expected to increase to 2.8 million tonnes in 2011–12 because of steadily rising demand. India is the biggest buyer of pulses, accounting for over 15 per cent of global trade purchases (Tiwari and Tiwari 2012).

Consequently, the government has become concerned about the long-term availability and market price of imports of oilseeds and lentils. Only about half of India's cultivable land currently has access to irrigation, with the rest dependent on erratic rainfall. Policy makers were alarmed by a 2009 NASA satellite study of northern and central India that found that the country is losing about 1 foot of groundwater each year (NASA 2009). In Punjab, a major food-producing region, it is predicted that by 2020 groundwater levels will fall to below 100 feet, so that all existing pumps and irrigation systems will stop working. This will represent a 'water bomb', which some experts say is already going off (Rodell et al. 2009: 999–1002; NASA 2009). Additionally, there are concerns about other possible longer-term geostrategic risks that could worsen the water crisis in India, such as the possibility that China may dam some of the main tributaries to rivers that flow through India (India–Latin America Conclave 2010).

In recent years, the Indian government has used a combination of trade policy and high-level commercial diplomacy to facilitate Indian agricultural investment overseas in order to further its food security strategy. Indian firms

interested in expanding overseas investment have called on the Indian government to develop a national policy on transnational farming supported by a legal and regulatory framework that reflects the nuances of overseas farmland acquisition and protects investors against associated risks. They are also calling for specific tariff duties to be lowered for imports into India from certain countries as well as other incentives (Kapur 2009).

On commercial policy, the Indian government has stepped up its cooperation with leading domestic trade and industry organisations to facilitate the outsourcing of India's food production. Business groups such as the Associated Chambers of Commerce and Industry of India, the Confederation of Indian Industry (CII), and the Federation of Indian Chambers of Commerce and Industry have organised several buyer-seller conferences involving African and Indian business delegations. At these conferences, in addition to the exploration of business opportunities in various sectors between the two partners, agricultural investments are pursued, often by official government trade delegations. Since 2005, the most important initiative has been the annual CII-EXIM Bank (Export-Import Bank of India) conclaves of India-Africa Project Partnership, where African government officials discuss business opportunities with Indian businesses, with the Indian government working as a catalyst. Certain Indian business associations are directly pursuing overseas agricultural investments on behalf of their members, such as the Consortium of Indian Farmers' Association and the Solvent Extractors' Association of India.

In addition, the Indian government has stepped up the granting of lines of credit (LOCs) through EXIM Bank to governments as part of its official foreign aid programmes, which are often tied to the purchase of goods and services from Indian companies. As of July 2012, there were 156 LOCs involving foreign governments or financial entities, although very few of them were for agriculture. These LOCs can provide purchase orders for Indian goods and services in Africa. For example, the Tanzania government received a US\$40 million LOC from India's EXIM Bank to buy 1,000 tractors from India's Agri Machinery Group, a subsidiary of Escorts Ltd (Doya 2011). However, there is no evidence that EXIM Bank LOCs have been used directly to facilitate the purchase or lease of agriculture land by Indian companies.

An agency that may play a role in facilitating such outward FDI by Indian agricultural companies is the Export Credit Guarantee Corporation of India Ltd (ECGC). Although ECGC provides a range of credit-risk insurance to Indian exporters, it also provides overseas investment insurance to Indian companies investing in joint ventures abroad in the form of equity or loans. The insurance covers the risks of war, expropriation and restriction on remittances, and usually is to cover Indian FDI risks in countries that already have investment treaties or agreements with India.

However, it remains unclear whether Indian companies receiving various

types of assistance from Indian government programmes are obliged to sell their produce back in India or may sell it in third country markets. Such questions are expected to be clarified in a new comprehensive overseas direct investment policy that the Indian government began drafting in 2011. Reportedly, the new policy will address all aspects of overseas foreign investment and will include special provisions to facilitate, encourage and expand overseas agricultural investments by Indian companies for exports back to the Indian market. To this end, the department of agriculture has been focusing on Africa and South America for the lease or purchase of lands and has started discussions with various embassies to facilitate further outsourcing of India's food production overseas.

To assist in exploring such options, in 2010 the department requested a study to be undertaken by the Indian Institute of Foreign Trade (IIFT) on 'Agricultural Outsourcing: Possible Opportunities for India' (Dey 2011; Government of India 2012a: 139). This is part of a larger effort under way in the department of commerce and industry to draft a new overseas investment policy that will update and streamline procedures and provide incentives and other support for outward Indian FDI. The department of agriculture was requested to provide input on that part of the new policy that supports Indian agricultural firms and efforts to outsource India's future food production (Dey 2011).

At the same time, many African governments eager for foreign investments have been courting Indian agricultural investors, offering special incentives that include long-term leases on massive tracts of arable land on very generous terms – and at much cheaper prices for land and water than in India. For example, Ethiopia has especially welcomed Indian agricultural companies, and has offered 1.8 million hectares of farmland to Indian investors, nearly equal to 40 per cent of the total area of the principal grain-growing state of Punjab in India (*Economic Times* 2011).

### **Review of five contracts with Indian agricultural companies in Ethiopia**

In 2011, amid growing controversy over Indian investments in Ethiopia, the Ethiopian minister of agriculture and rural development publicly disclosed 12 contractual agreements for land leases between Ethiopia and 24 companies or individuals, including contracts with five Indian companies. Their content confirmed many of the critics' deepest concerns about the large land deals.

The contract with Karuturi Agro Products PLC was for 100,000 hectares with the option of 200,000 additional hectares; with BHO Bio Products PLC for 27,000 hectares; Ruchi Agri PLC, 25,000 hectares; Sannati Agro Farm Enterprises, 10,000 hectares; and with Verdanta Harvests PLC for 3,012 hectares. All of the contracts were in Ethiopia's Gambella regional state and had terms of between 25 and 50 years, with options for renewal. The contracts' terms suggest that the Indian companies are being given everything and being asked



for very little in return that would benefit Ethiopian small-scale farmers or workers or would safeguard the environment. There are virtually no limits on groundwater use or environmental pollution, or obligations relating to labour, wages or working conditions, transfers of technology or purchases of local goods or services (Rowden 2011).

Each contract specifies that the companies are to ensure that environmental impact assessments are undertaken and submitted to the authorities shortly after operations commence and that the investors will abide by current Ethiopian conservation laws. However, they do not specify who exactly will undertake the environmental impact assessments, their quality and scope (would they consider impacts on neighbouring areas and underground water tables?), or the transparency of the process by which they are to be undertaken. Nor is it clear what remedial action would be undertaken by the companies or how this action would be enforced in the event that the assessments identify environmental threats.

All five contracts state that the Indian companies have the ‘right’ but not the ‘obligation’ to provide power, health clinics, schools, etc. to local communities. The contracts do not specify whether these services are to be provided to the local population or only to company workers. The fact that this provision is cast as a non-enforceable right suggests that the companies may choose not to act or to provide improved infrastructure for their workers or local communities. Yet the provision of such improvements had earlier been given a high profile by the Ethiopian government in explaining why investors should be allowed to make these investments (SMNE 2011).

Regarding water usage, the contracts specify that the companies have the right to build dams, sink boreholes and use irrigation systems as they see fit. Only the smallest contract, with Verdanta for a tea plantation, does not mention water rights. Interestingly, only the biggest contract with Karuturi includes an additional clause stating that the company has the right to ‘use irrigation water from rivers or groundwater’. But there are many other crucial details omitted from the contracts, such as payment for this water; how much water can be used over what period; how usage would be monitored; and the environmental impacts on surrounding areas arising from diversion of the water by the companies. The length of the leases also has a bearing on this, with relatively short leases possibly encouraging overexploitation for short-term gains, while longer leases may involve excessive use of groundwater, thus depriving neighbouring farmers and affecting the water table over time.

On taxation, all five contracts include clauses that state ‘in view of the importance of this proposed major investment’, the companies will enjoy ‘special investment privileges, such as exemptions from taxation and import duties on capital goods and repatriation of capital and profits granted under the investment laws of Ethiopia’. In addition, Indian companies are afforded legal

protection against nationalisation of their investment properties and other benefits under a bilateral investment treaty signed between Ethiopia and India in 2007. According to the bilateral investment promotion and protection agreement, Ethiopia provides Indian investors with tax holidays of up to five years, exemption from import duties, government guarantees against nationalisation, duty incentives and foreign exchange remittances (*Financial Express* 2006). India and Ethiopia also signed a double-taxation avoidance agreement in 2011 (PIB 2011).

None of these contracts mentions labour laws or specifies wages or working conditions for local employees. Nor is there anything in the contracts requiring the companies to dedicate a portion of the harvests to the domestic market for local food security needs. The absence of detail on these points is alarming, given their potentially negative impacts on local populations in terms of work, decent wages, workers' rights and protections and local food security.

The contracts do not seem to address one of the claims trumpeted by the companies and government regarding the increase in agricultural productivity and the transfer of new technologies to local farmers. If the omission suggests that Indian companies alone will retain the higher-value technology, then it is unclear how this will help other farmers in Ethiopia in the future.

Furthermore, one of the most disturbing aspects of the contract with Karuturi is the suggestion that the Ethiopian government will evict local people in the way of the commercial project, by force if necessary. Although in many cases the land in question has been or still is home to thousands of Ethiopian citizens (Metho 2011), Article 6.1 of the contract states: 'The lessor [government of Ethiopia] shall be obliged to deliver and hand over the vacant possession of leased land free of impediments.' Arguably, local people unwilling to leave their land constitute 'impediments' and the lessor is now contractually obliged to ensure that they are not a problem for the company. Article 6.6 seems to suggest that the government will provide police or military support against resistance:

The lessor shall ensure during the period of lease, the lessee shall enjoy peaceful and trouble free possession of the premises and it shall be provided adequate security, free of cost, for carrying out its entire activities in the said premises, against any riot, disturbance or any other turbulent time other than force majeure, as and when requested by the lessee.

Nowhere in the Karuturi contract, which is similar to the others, are there statements regarding compensation or other benefits to the indigenous Ethiopian people or communities affected by these land leases. Early on, the government promised that such investments would benefit the people in terms of jobs, clean water, improved healthcare and schools. However, under the contracts, investors are not obliged to offer any services to the local people and Karuturi is simply 'given the right' to build infrastructure as it wants and needs (Rowden 2011).

In sum, the five contracts suggest that the Indian companies are being given extremely generous terms and being asked for very little in return that would benefit Ethiopian small-scale farmers and workers or safeguard the environment. Under Indian laws and democratic safeguards, and given India's history of dynamic civic activism on land rights, it is difficult to imagine that foreign investors in India would be allowed to impact local communities and use their agricultural land and their water on similar terms. As many Indian small-scale farmers know from experience, questions of access to and control over water resources are highly important, and yet the contracts in Africa are extremely vague on these issues.

### **Activism against the trend**

Pointing to concerns about the trend towards 'land grabbing', former FAO Director-General Jacques Diouf has said that the manner in which foreign investments in agricultural land have recently unfolded could give rise to conflict and would probably be unsustainable unless future deals were implemented more equitably. Specifically, Diouf has stated that future investments should 'recognise the rights of local stakeholders and domestic food security and rural development concerns', and that agreements between governments and foreign investors 'should be based on balanced contracts and partnerships safeguarding the interests of all stakeholders' (FAO 2011a).

However, rather than address this enforcement of 'rights', a group of international agencies has instead moved ahead to establish a softer mechanism based on voluntary standards; under these standards, foreign investors pledge to improve the terms upon which they engage in such investments. In 2009, the FAO joined with the World Bank, the International Fund for Agricultural Development and the United Nations Conference on Trade and Development to draft responsible agricultural investment principles, a set of best practices and principles to which foreign agricultural investors can pledge to adhere. The FAO and its partners claim that such principles can make foreign investments a 'win-win' situation for all parties. Moreover, the IIFT study recommends, *inter alia*, that:

India should enter into bilateral framework agreements with countries which are willing to facilitate Indian investments, formulate Responsible Investment Principles on the basis of international norms, in consultation with investors, co-ordinate interventions of the Government of India under the India-Africa Framework for Cooperation and private investments by Indian entities in Africa to maximize the impact, and have a special focus on Latin America, where our Missions and the host countries are eager that India should take the initiative in this regard. (Government of India 2012a: 139)

However, the responsible agricultural investment principles have been widely

criticised by activists and scholars as an inadequate response that can actually legitimise land deals. Critics say the fact that the principles are only voluntary and neglect the key issue of rights means that they fall far short of the enforcement of rights, actual laws and strict regulations. An international statement by farmers' associations and non-governmental organisations (NGOs) calls instead for more democratic, transparent and accountable structures of decision making and the enforceability of rights of local communities to be at the centre of procedures for future deals. This would include upholding the citizens' right to prior informed consent of all proposed deals, rights of refusal, adequate compensation, and accountable and transparent mechanisms for redress in the event of damage (NGOs 2010).

In May 2012, after three years of negotiations following an outcry from land rights advocates, NGOs and human rights organisations, the UN adopted new voluntary global guidelines to defend the land rights of poor farmers and recognise informal indigenous claims to land. This move was hailed by advocates as a step against 'land grabbing'. The guidelines call on private companies to be transparent and to consult local populations, as well as to recognise the 'customary tenure systems' of indigenous populations. They also call on governments to 'provide appropriate recognition and protection of the legitimate tenure rights of indigenous peoples', to 'safeguard legitimate tenure rights against threats and infringements' and to 'provide effective and accessible means' to resolve tenure disputes. On the issue of expropriation, the guidelines state that governments should 'ensure a fair valuation and prompt compensation for farmers' and expropriate only when the land is needed for a public purpose (AFP 2012). 'Non-state actors, including business enterprises, have a responsibility to respect human rights and legitimate tenure rights,' they go on to say.

The fact that the document highlights the protection of rights is extremely important and this is what differentiates it from the weaker responsible agricultural investment principles. The International Land Coalition, an alliance of civil society groups, described the UN document as 'a remarkable advance towards people-centred land governance that is firmly anchored in a human rights framework', adding that 'non-state actors, such as multinational corporations, are given clear responsibilities to respect human rights'. In addition, the international farmers' movement La Via Campesina has said: 'It is now urgent that governments use these guidelines to adopt legislation to protect farms from this flagrant violation of their rights' (ibid.). However, it is clear that citizens will still need to mobilise to ensure that governments enforce such rights and hold companies to account.

The UN guidelines support the calls by many scientists, farmers' and indigenous peoples' organisations, social movements and civil society groups for better policy approaches that safeguard the rights of local populations

in future land deals, backed up by the strict enforcement of rights, prior informed consent, transparency and accountability mechanisms for citizens. There is also a need for enforceable regulations to stop excessive land deals and for more international support for national political reforms to enshrine and enforce land rights and other human rights for citizens, specifically for small-scale farmers.

Additionally, national and international coalitions of smaller farmers' associations and advocacy organisations are stepping up their criticisms of the global corporate monoculture model of large-scale production. In its place, they are advocating smaller-scale, agro-ecological approaches to sustainable agriculture. Advocates are calling for policies that keep land in the hands of local communities and implement genuine agrarian reform. The specific objectives of such policies would include ensuring equitable access to land and natural resources; increasing participatory research and training programmes to support agro-ecological peasant and smallholder farming, fishing and pastoralism; overhauling farm and trade liberalisation policies to prioritise national food sovereignty and support local and regional markets; promoting community-oriented food and farming systems based on local control over land, water and biodiversity; and, in place of voluntary codes of conduct, enforcing strict mandatory regulations that curb access by corporations and other powerful state and private actors to agricultural, coastal and grazing lands, forests and wetlands (NGOs 2010; FOEI 2010; Oakland Institute 2011a; Oxfam International 2011; Worldwatch 2011).

Growing evidence in support of such alternative models came from the International Assessment of Agricultural Knowledge, Science and Technology for Development conducted by the UN in 2008. In undertaking the assessment, the UN drew on evidence from a wide range of international scientists and concluded that small-scale, family-based farming systems that adopted agro-ecological approaches were among the most productive systems in developing countries (Meinzen-Dick and Markelova 2009; Ong'wen and Wright 2007). Advocates of these models share 'a recognition that hunger, poverty, and climate change are inter-related through the medium of agricultural policies' and have widely distributed the evidence against the global corporate model of commercial, high-input farming that employs biotechnology and genetic engineering to meet short-term commercial market objectives (Goswami 2011).

But the issue of who has the power to push their model is more a matter of politics than of science. This vast body of research favouring smaller-scale, agro-ecological approaches has been universally ignored by many global corporate agricultural investors and international aid donors and their institutional supporters, such as the Bill and Melinda Gates Foundation's Alliance for a Green Revolution in Africa. The financial and political power of the international agriculture industry and its financial investors is faced with

growing local and international civil society resistance, and it remains to be seen which side will win this battle over agricultural models and land rights.

Human rights groups have documented the challenges faced by local activists working against overseas land acquisitions on the ground in their own countries, such as Ethiopia, Madagascar and Uganda. In Uganda, two international organisations, Oxfam and Uganda Land Alliance, were threatened with de-registration for what the government claimed amounted to inciting violence over land issues in a controversial 2011 report on 'land grabbing' in Uganda, Indonesia, Guatemala, Honduras and South Sudan. The report stated that 22,500 Ugandans living in the Kiboga and neighbouring Mubende districts had been thrown out of their homes to make way for the UK-based New Forests Company, and that security forces had been deployed in 2010 to enforce the evictions (Oxfam International 2011). The groups successfully pressured the government to act on behalf of these local communities in Uganda, and ultimately the government announced a review of the contract and a new process for agricultural deals, in which New Forests Company agreed to participate. This was an important first step in ensuring that people's voices are heard. This case shows how important effective citizen mobilisations can be, but also how much more advocacy work lies ahead to ensure that such gains are actually enforced in Uganda and elsewhere.

For Indian citizens, local political resistance to foreign corporate takeovers of farmland is nothing new. Many have witnessed for five years the local resistance by citizens in Orissa against the South Korean Pohang Steel Company (POSCO) steel plant project. Environmental rights activist Vandana Shiva notes that ownership of POSCO has largely passed from South Koreans into the hands of Western institutional investors. She asked:

So as a result of this so-called globalisation and multilateralism, what does democracy in India look like today? Poor people are fighting a company owned by Wall Street [and] are refusing to give up their land. (D'Almeida 2011)

Unlike citizens in Ethiopia and many other developing countries, Indian citizens can legally object under the decentralised democracy of Panchayati Raj as well as under India's Forest Rights Act.

Despite these provisions and promising developments, small-scale farmers everywhere face illegal land evictions and dispossessions. Patel (2007) notes how the 'win-win' language of international corporate agribusinesses conceals the fact that 'as lands have fallen before the banks, repossessed and repurchased, suicide rates for farmers across the world have soared', including in India. Pan-Africanist and scholar Ama Biney has observed: 'It is ironic that while Indian farmers commit suicide, the Indian government is seeking to purchase land for growing food in Ethiopia and Sudan' (Biney 2009).

It is this common struggle that has led groups of small-scale farmers in

India, such as the National Alliance of People's Movements, who have been fighting forced evictions and dispossession in rural India, to take increasing note of the global nature of their problems. As Indian companies move overseas, some activists say that there is now a need for local Indian activists fighting for the rights of small-scale farmers to link with small-scale farmers and advocates around the world to stop the large-scale corporate land acquisitions internationally.

Some of the new solidarity links are asking Indian land rights activists to support activists in Africa by getting the Indian government to better regulate the overseas activities of Indian companies. For example, in a June 2011 'Open Letter to the People of India', the Solidarity Movement for a New Ethiopia asked India's citizens to take steps to stop the harmful 'land grabbing' in Ethiopia by Indian companies (Metho 2011). In May 2012, Ethiopian activists issued a public statement at a protest outside the Indian embassy in Washington DC calling on the Indian government to pressure Indian firms to desist from illegal land acquisitions, disclose the terms and conditions of individual land deals to the Ethiopian public and recognise the risks to India's reputation and the real risks to investors, and warned that a future 'representative government' in Ethiopia would not recognise or enforce current or future land deals (Birara 2012).

Many believe it is urgent that citizens who are free to raise their political voice should do so and forge alliances among the grassroots activists, organisations and movements that are challenging land deals both in India and Africa (Mittal 2011). For example, Ashok Choudhary of the National Forum of Forest People and Forest Workers has acknowledged that:

as Indians, it is our responsibility to be sensitive to Indian companies taking other countries' land overseas ... Today the corporates are going everywhere, so we all have a common struggle. (Choudhary 2011)

Medha Patkar of Narmada Bachao Andolan and the National Alliance of People's Movements has stated:

We are very concerned about what the Indian international companies are doing overseas, and we want to see international linkages of citizens get together to address this. Indian citizens must get involved with their partners in Africa and Southeast Asia to address this common crisis. (Patkar 2011)

The international advocacy links also include public protests outside the meetings of big agribusiness associations in New York City and the growing efforts by university students in the Responsible Endowments Coalition, which monitors university endowments and investments and advocates for more responsible university investments, including divestment of those institutional investors financing land deals.

## Conclusion

For their part, many Indian companies reject the allegations of ‘land grabbing’ and insist that the land deals are simply strategies for expansion. Sharad Pawar, India’s agriculture minister, also rejected claims that the government supports a new colonisation of African farmland: ‘Some companies are interested in buying agricultural land for sugar cane and then selling it on the international markets. It’s business, nothing more’ (Nelson 2009). However, critics of India’s role in the new ‘land grabbing’ trend suggest that the current behaviour of India’s companies does not bode well for the country’s growing role in the world economy. For example, the Oakland Institute’s Anuradha Mittal says:

In its new avatar as an economic superpower, India has also joined the neo-colonial race to take over land in poor African nations to outsource food and energy production. Through direct and indirect facilitation, the Indian government is encouraging its corporations to turn into 21st century versions of the British East India Company. Yesterday’s colonized has become today’s colonizer. (Mittal 2011)

Yet there is also a long tradition of domestic citizen activism on land rights within India, and a growing recognition among its activists and international networks of a responsibility on citizens to take steps at home to rein in the abusive actions of Indian companies overseas. In light of India’s involvement in the ‘land grabbing’ trend, Mittal poses a challenge to Indian citizens:

What does India want to be remembered as having achieved in the 21st century: exploitative colonization of less powerful nations and peoples, or leadership in the welfare of all humans in peace with the earth?





## PART III **Brazil**



## **7 | Brazil's cooperation in African agricultural development and food security**

Thomas Cooper Patriota and Francesco Maria Pierri

### **Introduction**

Over the past decade, three major international evolutions have run in parallel with a similar number of shifts in Brazil's political and economic trajectory. These interactions have in turn raised the emerging South American country's profile in global development and food security debates, and in a particularly relevant way for African countries.

First, the international commodity export boom driven by the growth of East Asian economies coincided with the first government led by the Workers' Party (Partido dos Trabalhadores) after the election of President Lula da Silva in 2003. While the commodity windfall enabled Brazil to pay off its external debts and to accumulate substantial foreign reserves,<sup>1</sup> these goals were achieved through the initial adoption of orthodox macroeconomic policies and a reliance on commodity exports – an unwelcome reminder of the persistent political weight of traditional socioeconomic structures even as Brazil launched its first-ever 'popular democratic' government. However, the orthodox package had been steadily abandoned by the end of the first Lula mandate, giving way to a return to policy-making sovereignty and the reactivation of the developmental state, thereby enabling Brazil to enter a new and consistent cycle of state-led economic growth.

Brazil's positive reversal of its balance of payments situation was partly enabled by two major technological advances in its national agro-industrial sector resulting from decades of state-led investment. On the one hand, the Brazilian economy was able to raise production levels quickly to take advantage of rising international demand for commodities. In part, this was thanks to considerable productivity gains brought about by investments in tropical agriculture led by the Empresa Brasileira de Pesquisa Agropecuária (Embrapa), a public research enterprise created in the 1970s. Indeed, since 2008 Brazil has become the third biggest global agriculture exporter after the US and the EU (the largest for sugar, beef, poultry, coffee, orange juice, tobacco and alcohol; second for soya beans and maize; and fourth for pork) (Landim 2010).<sup>2</sup> On the other hand, thanks to its national biofuel programme and industrial

innovation in developing flexible-fuel (flex-fuel) engines for its national car fleet (Schütte and Barros 2010), Brazil achieved energy self-sufficiency and reduced its dependence on imported oil. The new engines enable cars to run on any combination of oil and ethanol, giving consumers the option of switching to whichever fuel is cheapest at any time. More than 90 per cent of all cars currently built in Brazil are equipped with flex-fuel engines.

Brazil's growth in recent years has been driven mostly by a gradual expansion of the domestic market (while at the same time a policy of strategic integration into global markets has been pursued) *and* a reduction in income concentration, a growth strategy quite different from the state-led and 'trickle-down' growth approach of the 1970s. Indeed, along with the accumulation of foreign reserves, a tightly regulated domestic-oriented banking system and the diversification of trade relations with countries of the global South, it was the expansion of the domestic market that greatly reduced the country's vulnerability to international shocks, such as the financial and economic crisis of 2008–09. Exports have accounted for less than a quarter of gross domestic product (GDP) in recent years (23 per cent in 2008), while household consumption expenditures totalled almost two-thirds of GDP (60.7 per cent in 2008), more than in India (54.5 per cent) or China (35.3 per cent) (Leo and Watanabe 2010; World Bank 2011b).

With the gradual reduction of the external constraints by the end of the first Lula mandate, state-induced growth policies, such as massive public investment in infrastructure, expansion of access to credit, steady rises in the minimum wage above the inflation rate and a comprehensive array of social protection and promotion benefits, created the conditions for rapid economic growth and a reduction in the number of people living in poverty. Growth was broad-based, covering all sectors. During the last decade, although Brazil's GDP grew by a modest 4 per cent on average (2003–10), notably less than during the 1970s, the quality of growth was considerably better. Thus, the Gini index decreased from 0.5957 to 0.5448 (2001–09), 29 million people entered the 'new middle class' (2003–09), rising from the two lowest income quintiles (D and E) to the third or C class – statistical categories used by Instituto Brasileiro de Geografia e Estatística (IBGE), the Brazilian Institute of Geography and Statistics – and 15.384 million jobs were created (2003–10) (Neri 2010).

The combination of an inclusive growth strategy along with expanded social protection programmes produced dramatic results in terms of growth and social welfare. The minimum wage rose 80 per cent in real terms from 2003 to 2011. The social safety net includes 'targeted' programmes such as the Bolsa Família (conditional cash transfers distributed to more than 12 million families, almost a quarter of the population), as well as universal coverage systems such as social security pensions (34.8 million direct beneficiaries, of which 8.4 million were in rural areas in 2011). These pensions directly and indirectly benefit 104 million people, according to IBGE. This more recent trend, and its gradual

consolidation through a wide range of government policies, can be seen as a true departure from previous neoliberal arrangements (Fagnani 2011). This second and most crucial element in Brazil's domestic policy plans directly relates to the return of the food security issue to the top of the international agenda following the sudden hike in food prices in 2007–08, with its considerable social and political implications (Group of Eight – G8 – Summit in Hokkaido Toyako, Japan, 2008; United Nations Food and Agriculture Organization – FAO – World Summit on Food Security, Rome, 2008; African Union Summit, Sirte, Libya, 2009).<sup>3</sup> At the same time, Brazil was being increasingly recognised as a relevant player in global food security. This recognition was influenced by the success of its Zero Hunger strategy, which combined expanding access to food to the low-income population (Bolsa Família beneficiaries, primary and secondary school students) with the concomitant strengthening of domestic family farming (França 2009).<sup>4</sup>

As a result of these policies, Brazil drastically reduced food insecurity and rural poverty in the midst of the 2007–08 world food crises. Indeed, from 2003 to 2009, of the 29 million people who rose above the national poverty line, 4.8 million were rural dwellers. From another statistical perspective, 869,000 families operating under family farming tenure left poverty behind them, the result of an upward rural income trajectory marked by increases in income from agricultural (+18 per cent) and non-agricultural (+30 per cent) activities (Del Grossi 2010). Child malnutrition (0–5 years) also dropped from 13 per cent in 1996 to 7 per cent in 2006 (CONSEA et al. 2009).

Third, these changes have coincided with the gradual economic and political rise of emerging countries and fundamental shifts in Brazilian foreign policy. Whereas previous governments had mostly concentrated on maintaining close ties with the developed world and neighbouring countries, Lula's foreign policy strongly reinforced political and economic relations with the global South. South America was prioritised as the main geopolitical area of regional integration, but ties with the African continent were also reaffirmed, and there was increasing coordination with other emerging countries through such 'plurilateral'<sup>5</sup> mechanisms as IBSA (India, Brazil and South Africa dialogue forum), BRICS (Brazil, Russia, India, China and South Africa), BASIC (Brazil, South Africa, India and China), the Group of 20 (G20) developing nations (World Trade Organization or WTO), the G20 major economies, and in the various multilateral governance forums. There were two crucial turning points, of which the first was Brazil's central role (along with India, China and South Africa) in creating the so-called G20 developing nations, which called for an end to agricultural subsidies in developed countries and rejected an unfavourable deal at the Cancun WTO ministerial conference in September 2003. The second was Brazil's leadership in rejecting, and effectively burying, a Free Trade Area of the Americas in the last round of negotiations in Miami

in November 2003. This new foreign policy of forging a South–South tactical alliance has resulted in increased trade and investment relations between Brazil and developing countries.

As mentioned above, these three developments not only relate to the global development debate but are also specifically relevant to African countries. With regard to the reactivation of the developmental state, policy makers in most Southern countries, including in Africa, have also benefited from the recent windfall in commodity prices, which has arguably given them more room to manoeuvre in their policy making. Also, the rise of emerging countries such as China and other South-East Asian states is very much driven by an export-led strategy based on productivity gains resulting from investments in innovation coupled with temporarily undervalued wages to achieve a competitive advantage. Since most African countries have not yet experienced knowledge-intensive growth, and are mostly agriculture-driven economies in tropical settings, it is not surprising that the technologies that enabled Brazil's agriculture to achieve high productivity gains have attracted the attention of many African policy makers.

Nevertheless, it is worth mentioning that until the late 1990s these gains happened largely to the detriment of family farmers in Brazil, under what is often referred to as a 'painful' and 'conservative' agricultural modernisation process undertaken after the mid-1970s (Graziano de Silva 1981). During this period, the military regime's development strategy led to the concentration of natural resources and the means of production, and to the monopolisation of knowledge and research in the hands of big agribusiness. The result was a rural exodus, which in turn led to the concentration of poor, marginalised populations in urban slums in Brazilian cities. Indeed, between 1960 and 1990, Brazil's Gini index of income inequality rose from 0.5367 to 0.6091 (Neri 2010).

Unfortunately, the same political, cultural and economic constraints that long hampered the development of family farming in Brazil persist to some extent in African policy-making circles as a result of the dismantling of post-independence state-building advances under the structural adjustment programmes of the 1980s and 1990s (Moyo 2008). Indeed, even though many African countries have a predominantly rural population, most of them have invested less in their agricultural sectors as a proportion of GDP than other developing countries over the last three decades. For instance, African public investment in agriculture only rose from 5 per cent to 7 per cent of national budgets between 1980 and 2005, while that of Asian countries rose from 6 per cent to 15 per cent (Fan 2009).

Moreover, in those African countries that actually have invested in agriculture, these investments have usually privileged a large-scale export-oriented model, to the point where these countries have become important food exporters even as significant portions of their populations suffer from hunger and malnutri-

tion. On the one hand, the neglect of public investment in agriculture in past decades often reflects the disproportionate weight of international development agencies in African governments' policy decisions. On the other, prioritisation of large-scale, export-oriented agriculture investments reflects not only the rise of foreign investment by 'land grabbing' transnational firms – public or private – but also, and perhaps most importantly, a still pervasive perception of family farming as structurally unproductive. According to this view, those engaged in family farming are destined either to be absorbed into urban labour markets or to become recipients of rural social assistance programmes.

*Brazil–Africa cooperation in agriculture: scope, content and directions* As with other emerging countries in the past decade, Brazil's cooperation profile has gradually shifted from 'recipient' to 'donor'. However, the latter term should be distinguished from its traditional use by the Organisation for Economic Cooperation and Development (OECD) countries in that it follows the principles of South–South or horizontal cooperation (ABC 2010a). In Brazil, the term South–South cooperation is frequently used in reference to one of its specific modalities, namely technical cooperation among developing countries (TCDC). As defined by the Buenos Aires plan of action adopted by 138 countries of the global South in 1978, one of the main principles of TCDC is horizontality, in contrast to the frequently criticised top-down nature of North–South cooperation (Ayllón Pino and Costa Leite 2010). More specifically, as embodied by the concept of 'solidarity diplomacy', in principle Brazilian South–South cooperation is demand-driven and devoid of conditionalities or commercial interests. It aims to 'reinforce institutions and human resources through the development of capacities' (ABC 2010a).

The number of development projects has risen exponentially over the past decade, putting Brazil among the key players in South–South cooperation (although with a less sizeable financial portfolio than most emerging countries until now). According to the Brazilian Cooperation Agency (Agência Brasileira de Cooperação or ABC), total cooperation amounted to US\$90 million between 2003 and 2009 (of which US\$45 million was for African countries, as shown in Table 7.1). However, these figures do not take into account resources channelled through several other mechanisms (ibid.). Indeed, a study conducted by the Instituto de Pesquisa Econômica Aplicada (Ipea) (which included mechanisms such as contributions to international organisations, humanitarian aid and scholarships as well as TCDC) concluded that Brazil's cooperation amounted to US\$1.4 billion between 2005 and 2009 (Ipea 2010a).

Indeed, with regard to African countries, more than 100 cooperation agreements were signed between 2003 and 2009 (amounting to a total of more than 250 projects when combined with the existing 176), and in 2010 alone more than 300 initiatives were under way in 37 African countries, with a total budget



TABLE 7.1 Official amounts of Brazilian international cooperation (2003–09)

World region	Total amount (US\$ million)
Africa	45
Latin America and Caribbean	40
Asia (East Timor)	5

Source: Ipea 2010b<sup>6</sup>

of US\$65 million and for an estimated period of three years (ABC 2010b). Of the cooperation project proposals submitted by recipient countries to ABC, a majority are from Africa, while agriculture is the most frequently requested field of expertise (ABC 2010a).

With the aim of laying the ground for a more systematic agricultural cooperation strategy between Brazil and Africa, the Brazil–Africa Dialogue on Food Security, Fight against Hunger and Rural Development convened more than 40 African ministers in Brasília between 10 and 12 May 2010. The ensuing declaration gave Brazil’s agricultural cooperation with Africa a strong political mandate (in a similar way to the Forum on China–Africa Cooperation or the India–Africa Forum Summits) and laid out a roadmap of the main actions to be taken.

One may distinguish two main pillars of Brazil’s current agricultural cooperation in Africa. First, there is the sharing of tropical agriculture technologies (mainly provided by Embrapa) with many countries of the continent, often in tandem with investments in and technology transfers for the production of food crops as well as biofuels. Second, there are various forms of support for African family farming (mainly coordinated by the Ministry of Agrarian Development or MDA – Ministério do Desenvolvimento Agrário), ranging from the sharing of policy expertise aimed at this sector (such as public purchase schemes linked to domestic food aid and school feeding programmes) to concessional loans for importing Brazilian small-scale farming machinery. The differences in scope and underlying economic model in these initiatives very much reflect Brazil’s prevailing dual system of agriculture, in which a large-scale agribusiness sector mainly geared towards exports coexists with a medium- to small-scale family farming sector that produces most of the food consumed by the national population.

### **Technology transfer and capacity building in food crop and biofuel production**

*Technical cooperation for productivity increases in food crops* A great variety of institutions (ministries, universities, research enterprises, vocational training

centres, rural extension service providers) participate in Brazil's agricultural co-operation through myriad training and technology transfer projects. Examples of the more than 300 small cooperation projects being implemented or under negotiation with African countries include technical training in cattle management for beef and milk production in Senegal; support for horticultural development in Cape Verde; development of fish farming in Tanzania; and strengthening cocoa production in Congo (ABC 2010b).

The Brazilian government has limited human resource capacity to attend to all these demands, as most cooperation is handled by government officials who must also cope with daily business in Brazil. Consequently, Embrapa set up permanent offices in Accra, Ghana in 2008 as part of recent efforts to respond more systematically to the exponentially growing requests from African countries interested in Brazil's expertise in tropical agriculture. Also, in May 2010 (during the Brazil–Africa Dialogue), Embrapa launched the Centre for Strategic Studies and Training in Tropical Agriculture (Centro de Estudos Estratégicos e Capacitação em Agricultura Tropical or CECAT) in Brasília, a division specifically intended to offer technical training courses to researchers from tropical countries. At the same time, the Africa–Brazil Agricultural Innovation Marketplace, a technological innovation platform, was launched by Embrapa in partnership with the Forum for Agricultural Research in Africa and several international donors (International Fund for Agricultural Development, World Bank, UK Department for International Development and the Gates Foundation). By means of the latter platform, joint research projects involving African agricultural research institutions and Embrapa are selected through a competitive process and financed by the project's donors. Currently, projects are being implemented in Burkina Faso, Ethiopia, Mozambique, Kenya, Ghana, Tanzania and Togo.<sup>7</sup>

Also worthy of mention are fairs to promote Brazilian agricultural machinery and equipment, such as Brazil Agri-Solutions organised by the Agência Brasileira de Promoção de Exportações e Investimentos (Apex), the Brazilian trade and investment promotion agency, in 2009 in Dakar, Senegal.<sup>8</sup> Similarly, in 2010, Câmara Setorial de Máquinas e Implementos Agrícolas (CSMIA), the sector-specific chamber for machines and agricultural implements, signed an agreement with Embrapa to create the Agrishow Pró-África online portal. This will provide information promoting Brazilian agricultural machinery and technology both online and at fairs to be held in African countries. The site will also include contact information for Brazilian companies in CSMIA (Casale 2011).

In addition, since 2008, ABC has started promoting so-called 'structuring projects' with the intention of concentrating resources on larger projects with a more durable impact. These include the Cotton-4 project in Mali (also involving Burkina Faso, Benin and Senegal); the Rice Culture project in Senegal

(also benefiting Guinea-Bissau and Mali); and the Triangular Cooperation Programme for Agricultural Development of the African Tropical Savannah (the Pro-Savannah Japan–Brazil–Mozambique project) in Mozambique (see also Chapter 8).

The Cotton-4 project is related to the Doha development round negotiations, specifically the common concerns voiced by Brazil and West African cotton-producing states (C4) about US and EU subsidies. Indeed, these were ultimately deemed unlawful by a Brazil–US dispute panel at the WTO.<sup>9</sup> The panel ruled that the US subsidy to its cotton farmers artificially drove down global cotton prices, thereby harming production in poor countries. Embrapa's experience in developing cotton varieties over the past 20 years in Brazil (whose soils and climatic conditions are similar to those of the C4 countries) is being transferred with the aim of increasing C4 countries' competitiveness in international markets. Adaptation of Brazilian cotton varieties by a Malian experimental farm as well as integrated pest management has allowed Malian farmers to increase cotton yields from 1,000 kilograms per hectare in 2008 to 3,000 kilograms per hectare in 2009. In addition, 56 researchers from participating countries' agriculture research centres were given advanced training (World Bank 2011b).<sup>10</sup>

The Rice Culture project in Senegal aims to support the country's strategy of developing rice culture in various forms with the goal of achieving self-sufficiency.<sup>11</sup> A partnership between Embrapa and the Senegalese Institute for Agricultural Research aims to mechanise local production by training Senegalese technicians and includes the testing of several varieties of rice developed by Embrapa for the local production of adapted seeds.

The Pro-Savannah project is a trilateral cooperation partnership between Japan and Brazil's cooperation agencies (Japan International Cooperation Agency – JICA – and ABC) and the Institute for Agrarian Research of Mozambique (Instituto de Investigação Agrária de Moçambique), and aims to develop the so-called Nacala corridor in the northern provinces of Nampula, Zambézia, Niassa and Cabo Delgado, an area of approximately 540,000 square kilometres. As with the Maputo and Beira corridor initiatives, Mozambican authorities aim to take advantage of the strategic assets of Nacala (the deepest natural port in East Africa) and the railway that links it to landlocked Malawi and further to Tete province (where Brazilian iron ore multinational Vale has multibillion dollar investments in the extraction of mineral coal). The Nacala air base is also being converted into an international airport by the Brazilian construction firm Odebrecht, while the Japanese government is financing the construction and rehabilitation of the port of Nacala, as well as local roads, schools and hospitals (Mourão 2011).

The Pro-Savannah project aims to replicate the experience of developing the Brazilian *cerrado* region (a similar biome to Mozambique's savannah), which

was converted from barren land into one of the most productive agricultural regions in the world. The *cerrado* project began in the mid-1970s with Japanese cooperation and the implementation of technologies developed by Embrapa. Although the project in the *cerrado* region was fraught with long-lasting negative social and environmental consequences, Embrapa has taken steps not to repeat the same negative outcomes in the Mozambique project.

Pro-Savannah is a threefold programme: i) Project for Improving Research and Technology Transfer Capacity for Nacala Corridor Agriculture Development (ProSavana-PI); ii) Plan for Agricultural Development (ProSavana-PD); and iii) Project for Rural Extension (ProSavana-PE). With an initial estimated cost of US\$13.48 million over a five-year period, ProSavana-PI is planned to benefit 500 Mozambican researchers and rural extension officers and 40,000 farmers 'through the construction of integrated agricultural research centres, equipped with multi-purpose laboratories and seed processing units', as well as 'two training and capacity-building modules for rural extension technicians' (ABC 2010b). In 2011, 150 Mozambican researchers completed a course at Embrapa's CECAT training centre in Brasília and are expected to transmit the acquired knowledge to colleagues in Mozambique (Pires 2011) (see also Chapter 8).

In the research centres, cotton, soya bean, maize, sorghum and *cerrado* bean seeds are currently being adapted to northern Mozambican conditions (Mello 2011). The remaining two branches of the programme (PD and PE) are still being formulated. ProSavana-PD will be a long-term plan, aiming, among other things, to 'identify areas that have more vocation for family farming as well as those with potential for large-scale agribusiness' (Pires 2011).

Brazilian private investment is integrated into this initiative: the Mozambican Ministry of Agriculture is putting some of the land in the programme at the disposal of Brazilian farmers on very favourable terms (50-year concessions priced at US\$1.38 per hectare per year), provided that 90 per cent of the labour they employ is Mozambican, with the possible additional benefit of fiscal incentives to import Brazilian machinery. The attractiveness for Brazilian farmers, apart from the low price of land and absence of a language barrier, lies in the much cheaper freight charges for exports to China from Nacala than from any Brazilian port, as well as preferential trade terms accorded low-income African countries under such arrangements as the US African Growth and Opportunity Act or the EU's Everything but Arms initiative. Some 40 farmers from the Brazilian state of Mato Grosso made a first visit to Mozambique in September 2011 (Mello 2011).

Pro-Savannah's stated aim is to transform the region's subsistence agriculture in order to achieve 'food security through the rise of productivity', additionally 'generating exportable surpluses through an agribusiness-led agriculture' (*O País Económico* 2012). However, it is not clear what proportion of production is destined for internal sale (although this would probably be the

case for staple crops such as maize, sorghum and beans) to ensure Mozambican food security, or will be destined for export markets (as can be expected for soya beans and cotton). Nonetheless, both the Mozambican government and other Brazilian cooperation projects do offer complementary strategies for achieving food security as a main goal. For instance, Embrapa's four-year technical support to a food security and nutrition project, co-financed by the US Agency for International Development (US\$8 million) and ABC (US\$4 million) for the period 2011–15, 'aims to strengthen capacity for horticultural production and distribution ... as well as to consolidate family-based agriculture' in Mozambique (World Bank 2011b; Chichava 2011).

Moreover, although technology transfers, capacity building and national employment guarantees, as well as the stated objectives of enhancing local farmers' productivity through sustainable and environmentally sound practices, are encouraging (Mourão 2011),<sup>12</sup> it remains to be seen whether the land leased to Brazilian or other foreign companies will result in conflicts with local peasants in cases where they have to relinquish plots. Official declarations (as well as Mozambican land laws) indicate that companies should be allocated mostly idle land. According to official sources, only 2 million hectares or 4 per cent of Mozambique's 55 million hectares of tropical savannah are currently cropped (Kumashiro and Paiva 2011). In the programme's initial phase, 120,000 hectares have been partly allocated by provincial governments to Mozambican ex-combatants, family farming communities or producers' associations (Pires 2011). Similarly, although Brazilian companies tend to be considered relatively labour-friendly, such conditions are not universal. Indeed, labour conditions in parts of the Brazilian countryside are still appalling and have been rightly decried by national and international critics. Thus, it would be commendable for Brazilian and Mozambican government authorities to ensure that decent labour conditions prevail in the Brazilian investment projects in the Nacala corridor.

*Technology transfers in biofuel production* Food security, environmental and labour conditions and how these relate to land use and tenure are also the three main issues at stake regarding the potential and pitfalls of biofuels, whether in Brazil or Africa. Indeed, during the food price hikes of 2007–08, Brazil's biofuel industry was accused of driving up sugar prices. However, while the US ethanol industry did have a serious impact on corn prices (and consequently on food security in countries such as Mexico, for instance, where corn is a staple), so far 'Brazil's sugarcane production has risen sufficiently to cover demand for both sugar and ethanol' (Schütte and Barros 2010).

Even so, since that time Brazil's ethanol promotion abroad has become more cautious, and now specifies that the cultivation of sugar cane devoted to ethanol should take place only in parallel with productivity gains in food

crops, and only in countries where there is sufficient arable land to make this combination viable. Official discourse has also come to stress that ethanol production should preferably take place in zones already under cultivation or pasture. The more recent Brazilian discourse is indeed relevant to the hyperbolic debate on biofuel and 'land grabbing' in Africa.

This precaution also relates to environmental concerns, since Brazilian ethanol production has frequently been accused of contributing to deforestation. Although sugar cane plantations in Brazil are located more than 2,000 kilometres from the Amazon rainforest, the concept of indirect land use change (ILUC) rightly illustrates the risks of crop substitution. Indeed, in some cases sugar cane expansion has displaced soya bean and low-productivity extensive cattle ranching into Amazon lands, thus indirectly causing deforestation. While not directly addressing the ILUC issue, the Agro-Ecological Zoning of Sugar Cane Law approved in 2009 does at least create some legal safeguards by restricting sugar cane expansion and the building of refineries in sensitive biomes, including the Amazon region. Labour conditions in sugar cane fields have also made some progress, partly as a result of international pressure and a government crackdown on farmworker exploitation and cases of modern-day slavery. However, working conditions remain dire on many sugar cane estates (see Chapter 8).

For African countries, provided that these issues are addressed effectively, and depending on each country's characteristics, Brazilian cooperation in biofuels can reduce energy dependence on oil imports, contribute to national refinery industries, generate income in the countryside and reduce greenhouse gas emissions. Indeed, the riots that erupted in many African countries in 2007–08 were linked not only to rising food prices but also to the higher costs of public transport as a result of the parallel hike in oil prices. As with food sovereignty, lower energy dependence is seen as a strategic goal by many African countries, hence their interest in acquiring Brazilian biofuel production technology.

Brazil is the world's second-largest producer and the prime exporter of ethanol (accounting for two-thirds of world exports), while its sugar cane-based ethanol is almost five times more energy efficient than US corn-based ethanol and uses half the land per litre (Schütte and Barros 2010). However, market concentration in a handful of countries currently prevents ethanol from acquiring global commodity status, making it more difficult to trade internationally than other established commodities. It is therefore in the interest of Brazil's ethanol sector to increase the number of producer and consumer countries. Moreover, the transfer of Brazil's biofuel-producing technology to African countries may also generate demand for equipment linked to its ethanol-specific processing and car manufacturing industries.

The Brazilian government's Structured Support Programme to Developing

Countries in Renewable Energies (Pro-Renova) has promoted capacity building by means of research and technology transfers through African regional bodies such as the Southern African Development Community and the Economic Community of West African States (ECOWAS). A memorandum of understanding was signed with the West African Economic and Monetary Union (Union Economique et Monétaire Ouest-Africaine or UEMOA) in 2007,<sup>13</sup> and is to be extended to the other ECOWAS members in cooperation with this regional bloc's recently inaugurated Regional Centre for Renewable Energy and Energy Efficiency in Praia, Cape Verde (World Bank 2011b).

African countries' biofuel strategies usually relate to several strategic goals, such as diversifying domestic energy resources, generating refinery capacity and diversifying exports, and are sometimes combined with sugar production strategies. Moreover, unlike other commodities, sugar cane is difficult to export unprocessed, which creates opportunities for building local processing industries (*ibid.*).

Most cooperation projects involve financing by Brazil's development bank, BNDES (Banco Nacional do Desenvolvimento) and the building of local refining plants, as in Angola, Ghana and Mozambique (US\$1.5 billion credit line for Angola in 2006; US\$3.5 billion for Ghana and Mozambique in 2010) (*ibid.*). Joint ventures have been signed between Brazilian and African companies in Angola (Odebrecht has participated in building ethanol plants with Damer and state-owned Sonangol) and Ghana (with Northern Sugar Resources), with loans of US\$400 million and US\$260 million respectively from BNDES. Furthermore, Dedini has built a plant in Sudan (with the Kenana Sugar Company) while Petrobras's biofuel subsidiary, Petrobras Biocombustível, as well as Guarani, are collaborating with Mozambique's Companhia de Sena and state-owned Petromoc (CEIRI 2011).

Several African countries have established national laws and regulatory mechanisms for compulsory minimum percentages of ethanol and biodiesel in national oil distribution circuits (Ethiopia, Mozambique, Uganda, Tanzania and Kenya) (Guarany 2011). Indeed, several of these countries are significant importers of Brazilian ethanol: Nigeria (tenth largest importer), Ghana (sixteenth) and Angola (twenty-second) in 2008 (Freemantle and Stevens 2010). Other countries have concentrated on export markets with the assistance of Brazil's cooperation and private sectors, as part of its ethanol commoditisation strategy, thereby helping to create international links between ethanol producer and consumer countries. In this respect, several tripartite partnerships have been signed, such as the international long-term supply contracts between Sudan and the UK, or between Ghana and Sweden. These contracts arise from the EU countries' goal of mixing minimum percentages of biofuels for their car fleets (Bravo 2011).<sup>14</sup>

National strategies in countries such as Angola and Mozambique clearly



recognise the need to reconcile ethanol and sugar production and food security, given the large tracts of land earmarked for ethanol production. Similarly, Brazilian think tank Fundação Getulio Vargas's (FGV's) Tropical Belt project is conducting studies aimed at reconciling food and biofuel private investments in Central American and African countries,<sup>15</sup> as well as creating the conditions for both large agribusiness and family farming ventures in each recipient country. Born out of agreements signed by the Brazilian government with the US in 2007 and the EU in 2011, and technical cooperation agreements with Central American and African countries, the project is financed by a pool of investors, including the International Development Bank and Organization of American States, Brazilian government agencies (Financiadora de Estudos e Projetos and Apex), as well as Vale (Pires 2011).

Brazil–Africa cooperation in biofuels has thus involved several research institutions as well as sugar cane growing and/or state-owned and private biofuel-refining companies. However, the potential benefits of Brazil's cooperation for generating income in rural areas and in the general economy largely depend on the African country's own national strategy. With regard to family farming, for instance, the Biofuels Association of Zambia has expressed interest in small-scale projects, particularly those that combine biofuel production with electricity generation from sugar cane bagasse (i.e. refuse from the processing of sugar cane). In this sense, although still at an initial stage, Brazil's National Programme for the Production and Use of Biodiesel (Programa Nacional de Produção e Uso do Biodiesel), which gives special discounts to biodiesel-processing firms that acquire minimum percentages of their raw materials (soya beans, castor oil, palm oil, etc.) from family farmers,<sup>16</sup> can be of great relevance (Cassel 2010). There are many other examples of policies aimed at strengthening family farming in Brazil, and this approach forms the basis of the other main branch of Brazilian agricultural cooperation with Africa.

### **Family farming for food security and sovereignty: policy dialogue and technical cooperation across the value chain**

*Championing small farmers: a strategy that pays* In recent years, family farming has been legitimised as a 'national development actor' in Brazil. Besides its essential contribution to food security, it is also recognised as playing a prominent role in the achievement of other strategic goals, such as control of inflationary pressures, stabilisation of balance of payments, sustainable occupation of rural areas and countering the rural exodus. This recognition has gradually resulted in the allocation of public funds to a ministry specifically mandated to stimulate family farming,<sup>17</sup> and increasing demands for agricultural research and technology that have since resulted in sector-specific policy and technological innovation.

Brazil's Zero Hunger strategy succeeded in creating virtuous social and



economic circles in the countryside by linking public support to family farming with food distribution programmes at the onset of the international food, financial and economic crises of 2008. This success turned Brazil into a prominent actor in policy dialogue and technical cooperation on agricultural and food security matters. Brazil has thus been able to promote its own food security paradigm in the various international forums opened up by its foreign policy, such as the BRICS and the G20 agriculture ministers' meetings. The adoption of a programme promoting national public procurement policies – partly inspired by Brazil's recent experience – by the World Food Programme (Purchase for Progress), as well as the election in 2011 of José Graziano da Silva, a leading mentor in Brazil's food security strategy, as the FAO Director-General, bear testimony to the international recognition of Brazil's new food security paradigm. Starting in 2003, the government created a 'network of permanent and simultaneous public policies geared towards family farming, encompassing credit, technical assistance, agriculture insurance, price guarantee and public procurement policies' (ibid.). These policies have provided efficient support to family farmers across the value chain, with outstanding results. Seventy per cent of the food consumed by Brazilians is produced by a dynamic, land-intensive and diversified family farming sector, whose productivity per hectare is today estimated to be 89 per cent higher than that of large-scale monoculture (França 2009).

An important lesson to be learned from the policies supporting Brazilian family farming is that, for this strategy to be effective, all elements of support must be present. For instance, access to more credit without proper technical assistance to increase yields will only mire family farmers in debt. Similarly, potential rises in productivity could lead to overproduction without increases in income if farmers are not given proper access to markets, especially of the predictable and guaranteed kind that public procurement schemes can provide.

As a result, MDA's international cooperation efforts have aimed to replicate this value chain approach by structuring projects as a coherent ensemble of policy dialogues and training modules. On the supply side, the following programmes deserve mention: a comprehensive credit system (including the use of national networks of public finance institutions and the creation of specific credit lines for women and/or young farmers); family farmer insurance, which reimburses farmers in the case of unexpected harvest losses due to severe climatic events, or income losses from market price falls at the time of sale below guaranteed prices, calculated from average production costs; building a national technical assistance and rural extension system based on Brazil's experience of rebuilding its own system to address the specific needs of small-scale farming, including 'post-green revolution' sustainable practices; and sharing the technological and equipment platform created under the More Food programme.

On the demand side, the Brazilian government has created public procurement programmes, namely the Food Purchase Programme or PAA (Programa de Aquisição de Alimentos) and the National School Feeding Programme or PNAE (Programa Nacional de Alimentação Escolar), that have given family farmers predictable and guaranteed access to markets for their products, as a way of complementing sales to the private sector. Moreover, the creation of institutional markets was also based on the understanding that vulnerable groups and public food distribution systems could benefit from the supply of family farming products as part of a national food security strategy.

*Brazilian support to family farming in Africa: public purchase and More Food for Africa programmes* Based on the priorities voiced by African ministers of agriculture, the international cooperation priorities in the 2010 Brazil–Africa Dialogue final declaration gave particular emphasis to two main aspects of Brazil’s family farming strategy: public procurement programmes (through the implementation of ten pilot projects, based on PAA, as well as expanding school meal programmes in African countries, based on PNAE); and support for family farming modernisation (through an international adaptation of the More Food programme).

As a result, the Brazilian government signed a cooperation agreement with the FAO on the implementation of public procurement programmes, and created an export credit line to convert its More Food programme into an international initiative. Moreover, other elements of Brazil’s family farming programmes were also ultimately integrated into these projects so as to preserve the integrated value chain approach.

The joint FAO–Brazil umbrella project for trilateral cooperation (Linking Family Agriculture to School Feeding and Food Assistance – A Model for Africa), signed on 11 February 2011, is to be implemented over three years with a total budget of US\$2 million, in partnership with national and local governments, farmers’ organisations and the World Food Programme. The pilot projects to transfer the PAA methodology will be in Côte d’Ivoire, Zimbabwe, Ghana, Rwanda, Kenya, Mozambique, Malawi, Senegal, Ethiopia and Niger. African countries with Home-Grown School Feeding (HGSF) programmes, often based on Brazil’s PNAE, include Ghana, Côte d’Ivoire, Cape Verde, Mozambique, Zambia and São Tomé and Príncipe (the last three established with FNDE<sup>18</sup> cooperation).

PNAE is Brazil’s oldest national food distribution programme, and was first created in the 1940s under the influence of Josué de Castro, author of the world famous *The Geography of Hunger* (1946) and a leading academic and political figure in Brazil’s struggle against hunger. In 2009, the programme became closely intertwined with agricultural policy after the passing of federal law 11.947. This determined that at least 30 per cent of PNAE resources must

be used to purchase family farming products, prioritising agrarian reform beneficiaries, indigenous people and traditional communities (whenever possible, located in the school's municipality). PAA was instituted in 2003 as a pillar of the Zero Hunger strategy, and acquires family farming products both for distribution to beneficiaries of social programmes and as price stabilising stocks.<sup>19</sup> This cooperation effort therefore focuses on strengthening African governments' institutional capacity to establish and operate sustainable public procurement and food distribution programmes based on the stimulation of local food production.

Brazil's leading PNAE and PAA policy makers believe not only that these programmes, when adapted to African countries, simultaneously address issues of social protection and access to markets and income generation, but also that the very process of building them is a relevant policy-making exercise. Particularly noteworthy is the participatory empowerment of all the actors (farmers, school directors, students, parents, nutritionists, supply agencies) and the fact that such projects create capacities on both the demand (various forms of public procurement) and supply side (technical assistance, rural extension, storage and marketing capacities) (Mielitz Netto 2011).

The More Food for Africa programme is inspired by its More Food domestic equivalent, a credit line created in 2008 by MDA to address strategic food sovereignty needs at the onset of the international food price crisis by seizing the political opportunity presented to raise the productivity of Brazil's family farming sector. The programme provides family farmers with credit on preferential terms (2 per cent interest rates, a ten-year term and three-year grace period) to purchase at subsidised prices (up to 17.5 per cent discounts) a wide variety of agricultural equipment and machinery geared towards small- and medium-scale farming. In addition, there is technical assistance to identify specific mechanisation needs and transfer the operational skills. In the two years since its inception, the More Food programme has provided about US\$2.2 billion in credit (with up to US\$56,370 per family) through over 100,000 contracts, dramatically increasing family farmer productivity per area (89 per cent) and income (30 per cent) (Cassel 2010; França 2009).

It has also provided the industrial sector with steadily increasing demand, enabling it to plan investments in mass production of new machinery and equipment tailored to family farming. Thus, in 2002, tractors of up to 78 hp accounted for 37 per cent of total production, but by 2009 this had risen to 75 per cent. Moreover, the synergy generated by family farmers' access to the programme and the consequent demand for agricultural machinery has amounted to a true national-scale countercyclical industrial policy.<sup>20</sup> This was demonstrated at the height of the global financial crisis: from January to May 2009, the More Food programme drove 61 per cent of Brazil's tractor sales and benefited 41 per cent of the agriculture machinery workforce.

As mentioned before, the initiative to make the same agricultural machinery and equipment available on similar conditions to African countries was launched by President Lula during the Brazil–Africa Dialogue, thereby basically converting the national credit line into an export finance concessional loan. The ensuing More Food for Africa programme was built to provide both ‘soft’ and ‘social’ technologies (technical assistance and policy dialogue) and ‘hard’ ones (machinery and equipment), and to link them to cooperation projects in support of African-owned agricultural development plans. It is structured as a threefold programme:

- *Technical cooperation project (TCP)*: A TCP is signed with each country to facilitate exchanges on technical assistance and rural extension activities during field visits in Africa and Brazil. The activities and priorities are agreed by the parties and generally include policy dialogues to share the social technologies applied in Brazilian public policies.
- *Credit*: A concessional loan is provided for each country to import the agricultural equipment the parties consider necessary for the recipient countries’ national family farming development strategy. The More Food for Africa credit line was approved on November 2010 by the council of ministers of the Brazilian Chamber of Foreign Trade (Câmara de Comércio Exterior or CAMEX) under the PROEX (Programa de Financiamento às Exportações) concessional modality. CAMEX budgeted US\$640 million for an initial two years on the following conditions: 2 per cent interest rate (or Libor, if this rate is below 2 per cent at the time of approval), 15-year term and three-year grace period; the reimbursement conditions are extended to 17 and five years respectively for Heavily Indebted Poor Country (HIPC) recipients.
- *Agreement with the industrial sector*: Recipient African countries draw up a list of machinery items while MDA negotiates prices with the manufacturers’ unions on the following conditions: firms are ranked according to an agreed methodology, based on their capacity to export to the African country as well as on buyer guarantees (convergent technological quality, first-aid repair kits and after-sales service); a unique price is determined for each item, regardless of brand; and items must be bought from a minimum number of different companies to ensure fair market access.

As of February 2012, five African countries had signed TCPs with Brazil based on their national agricultural development strategies: Ghana (Medium-term Agriculture Sector Investment Plan, 2011–15);<sup>21</sup> Zimbabwe (Agricultural Growth Strategy for the Medium- to Long-term Plan, 2011–30); Senegal (Plan Stratégique Décennal de l’Agriculture); Kenya (National Agricultural Mechanisation Strategy); and Mozambique (Plano Estratégico para o Desenvolvimento do Setor Agrário, 2011–20). In addition, Namibia, Tanzania, Cameroon, Benin

and Sudan have formally expressed interest in entering the programme. The CAMEX ministers' council has approved export credits of US\$95.5 million, US\$98.7 million and US\$97.6 million for Ghana, Zimbabwe and Mozambique respectively.<sup>22</sup>

## Conclusion

Brazil's agricultural cooperation in Africa is shifting from small localised projects to more structured ventures capable of having larger and more durable impacts on African rural development. Nonetheless, it still suffers from inadequate coordination between relevant ministries and other governmental bodies. However, the coexistence of two agricultural development paradigms in Brazil's cooperation should not be seen as incoherent. Rather, it is a direct reflection of the two-tiered structure of Brazil's agricultural policy framework, with support for agribusiness provided by the Ministry of Agriculture, Livestock and Food Supply (Ministério da Agricultura, Pecuária e Abastecimento) and for family farming by MDA.

Consequently, the Brazilian government has attempted to present both as part of the Brazil–Africa Dialogue to enable African ministers to learn about the wide range of policies implemented in Brazil. Combined with demand-driven horizontal cooperation, the approach has enabled African countries to choose between (and sometimes combine) approaches to promoting their agriculture.

The larger cooperation projects also represent a transition in Brazil's cooperation paradigm, which calls for an *aggiornamento* of its conceptual framework of South–South cooperation. Indeed, although all Brazilian cooperation remains demand-driven – in line with traditional foreign policy principles of respect for people's sovereignty and non-intervention in internal affairs – in practice its theoretical commitment to separate cooperation from commercial interests and, arguably, from conditionalities has been bypassed in recent programmes. However, it is important to distinguish these from typical North–South tied aid or conditionality-driven cooperation.

While technically More Food for Africa can be considered a case of tied aid,<sup>23</sup> most critics of the latter usually focus on how it reinforces economic dominance by Northern countries, for example by simply exporting products or handing out 'turnkey solutions' without transferring the relevant technology or know-how: in short, 'providing the fish without teaching how to fish'. The 'trade not aid' paradigm criticises 'international development aid' along the same lines, as merely a palliative for structurally unequal trade relationships.

Conversely, Brazil's South–South cooperation does not involve 'aid' in the form of money transfers. Rather, it focuses on capacity building and technology transfers. However, in the case of More Food for Africa, training in the use, maintenance and repair of machines is directly linked to the small-scale family farming technological package, and it would indeed be counterproductive for

Brazilian technicians to attempt to transfer technology for foreign machines they are not used to operating. Moreover, the programme's credit line is more akin to government industry stimulus than to forms of rentier protectionism, and is destined for countries generally lacking local machinery industries that could be harmed by the preferential treatment afforded Brazilian industry. It is also worth mentioning that Brazil and recipient countries are currently in discussions about setting up joint ventures for building machinery and equipment workshops as well as other industrial facilities in loco.

Furthermore, More Food for Africa's ultimate goal is to raise the productivity of family farming in African countries, which has clear implications for their efforts to reduce dependency on food imports.<sup>24</sup> Similarly, biofuel cooperation reflects both solidarity and pragmatism, as it is an opportunity for African industrialisation and productivity gains through technology transfers, from sugar cane growing to refining, but also clearly serves a long-term interest on the part of Brazilian industries in ethanol commoditisation.

However, the design of the More Food for Africa programme, which restricts the credit line to the same equipment available to Brazilian family farmers (in spite of frequent African requests to purchase larger-scale equipment), could be considered an *ex post* conditionality of sorts, with the underlying idea that recipient countries will use the acquired machines only for family farming purposes. However, recipient countries have complete choice about which aspects of Brazilian domestic policies they wish to adopt, and their participation in one programme does not determine their access to other cooperation modalities. Again, this differs from what frequently occurs in North–South cooperation.<sup>25</sup>

The degree of conditionality in the More Food for Africa programme, which also requires applicant countries to present a national strategy for the expansion of family farming, is, more broadly speaking, a reflection of MDA's comprehensive value chain approach. This ultimately reflects the Brazilian government's push for a food security and rural development paradigm based on the promotion of family farming, although not excluding complementary strategies for the development of large-scale agriculture. Undoubtedly, given that in most African countries small-scale farming is still practised by a majority of the population, it becomes clear that what is needed, perhaps more than additional 'aid' funding, is a paradigm shift. Indeed, recent Brazilian experience of support to family farming has shown that this sector can be part of the solution if given the proper set of incentives.

However, while Brazil's rural landscape is under a dual system that mixes 1970s-style large-scale agriculture with family farming, African policy makers are able to incorporate Embrapa's tropical agriculture productivity gains in a more socially sustainable way, and to avoid Brazil's past mistakes in a continent that is still much less urbanised. With a coherent set of policies, those

African countries that are still predominantly rural can create the conditions for a smoother transition – only barely initiated in Brazil – to a post-Fordist, geographically decentralised economy, with a greater rural–urban balance, based on small- and medium-scale employment-generating and technology-intensive establishments, which will hopefully bring about more socially and environmentally sustainable production and consumption patterns.

## 8 | Brazil, biofuels and food security in Mozambique

Kai Thaler

### Introduction

Brazil today stands as one of the great development successes of the twentieth century. The country has greatly reduced its burden of poverty and hunger; it successfully transitioned from dictatorship to a vibrant democracy; and it has moved from a marginal role as a ‘sleeping giant’<sup>1</sup> in international affairs to an increasingly assertive position as one of the so-called emerging powers of the twenty-first century. Brazil has many lingering social problems, among the greatest being persistently high levels of inequality, but in its new position as a global leader and aspirant to greater power, the country has begun to turn its attention outward and take an active interest in other countries’ development.

One of the main drivers of Brazil’s twentieth-century development process was its advances in agricultural production, which drove economic growth while also helping to alleviate hunger in its rapidly expanding cities (though often at the cost of the food and land sovereignty of the rural population). As Brazil has increased its involvement abroad, agriculture has become a pillar of its development assistance programmes and foreign direct investment and is seen as one of Brazil’s particular strengths as it seeks to cultivate stronger relationships with other countries in the global South, particularly in Africa.

Food insecurity in Africa remains a constant concern for the continent’s governments and the international community. Many of the developing countries of Asia and Latin America greatly expanded agricultural production during the green revolution of the 1960s and 1970s, but the impacts of this shift in agricultural technologies and practices failed to take hold in Africa, leaving observers wondering when and how Africa should best achieve its own green revolution (see Diao et al. 2008; Gowing and Palmer 2008).<sup>2</sup> Brazil’s experience in greatly increasing its own agricultural production has granted it expertise that may be useful in helping African countries to meet their food needs.

Brazilian agricultural assistance and investments have not been limited to food production, however. Brazil has long been a global leader in the production and usage of biofuels – combustible liquid fuels produced from agricultural crops or crop waste.<sup>3</sup> Biofuels have grown in prominence over the past



two decades as they have been presented as one potential option for meeting global energy needs while reducing greenhouse gas emissions. However, serious concerns remain about the balance of costs and benefits provided by the production of biofuel from different feedstocks, including the effect of biofuel feedstock cultivation on food security (see Chapter 7).

This chapter, therefore, explores the role of agriculture in Brazilian development assistance programmes and direct investment in Africa, focusing on the potential tensions between biofuel feedstock and food production. After a brief overview of the history of Brazil's own agricultural development and the country's relations with Africa, the chapter delves into an examination of Brazilian engagement in the conjoined agricultural and energy sectors of Mozambique, a country that possesses large tracts of arable land and is considered a prime site for biofuel production. The chapter critiques Brazil's development assistance and investment model and presents ways to improve its effectiveness in order to generate greater benefits for the Mozambican people.

### **Brazilian agricultural development and relations with Africa**

Both Brazil's engagement with Africa and the country's agricultural development have grown by leaps and bounds during the period from the early 1970s to the present day. Throughout the 1960s, as Portugal was waging wars to hold on to its African colonies, Brazil remained deferent to its former colonial master. With the 1974 Carnation Revolution in Portugal that overthrew the Salazar–Caetano dictatorship, Brazil seized the opportunity to rapidly shift its approach, becoming the first country allied with the 'West' to recognise Angola's independence, and quickly recognising the independence of Mozambique, Guinea-Bissau and Cape Verde, an 'astute strategic manoeuvre' that has engendered goodwill towards Brazil in these countries up to the present day (White 2010: 224).

In the 1970s and 1980s, Brazilian policy in Africa was focused primarily on securing oil supplies, so diplomatic emphasis was given to relations with Angola and Nigeria. Brazilian development assistance was unheard of at the time, as Brazil remained focused on its own domestic socioeconomic development. Alongside increasing industrialisation, Brazil's economic policy was based around the expansion of agricultural production to promote growth, combat poverty and increase food security.

#### *Brazil's domestic priorities: food and energy security as catalysts for growth*

ACHIEVING FOOD SECURITY: PRIORITY NUMBER ONE To achieve increases in agricultural production, Brazil relied on a dual strategy of expansion of the area of land under cultivation and research and technological innovation. Brazil began to expand agriculture into its internal frontiers in the Amazon and the savannah of the *cerrado* region of the south-east and central western parts of the country, a process also aimed at consolidating state control of

these regions. To increase production, especially in the acidic *cerrado* soils, technological innovations were needed. In addition to taking advantage of global advances in fertilisers and mechanisation, Brazil began to ramp up its own agricultural research capacity, which had been extremely low (Graham et al. 1987).<sup>4</sup> National efforts were organised through the founding in 1973 of the Empresa Brasileira de Pesquisa Agropecuária (Embrapa, or the Brazilian Agricultural Research Corporation), which is affiliated to the Ministry of Agriculture, to test and create crop varieties suitable for cultivation in the country's different climates.

Embrapa's first major task was increasing agricultural production in the *cerrado* region, and in this it was highly successful. According to Francisco Reifschneider, an Embrapa researcher: 'The general impression was that this was wasteland. Today this "wasteland" produces more than 45 per cent of the total grain of this country' (Akinola 2010). Brazil has now become a net exporter of food, and food insecurity has fallen thanks to reduced income inequality, lower prices due to greater domestic food production, and the efforts of the administration of President Luiz Inácio Lula da Silva (2003–10), the keystone of whose social policy was the multifaceted Fome Zero (Zero Hunger) initiative (see, for example, Neves do Amaral and Peduto 2010). The agriculture and livestock sector grew at an average annual rate of 2 per cent from the 1970s to 2005 (Akinola 2010) and is currently growing at over 6 per cent per year (De Onis 2008: 113), making Brazil today the world's second-largest agricultural producer, behind only the United States.

**ACHIEVING ENERGY SECURITY: PRIORITY NUMBER TWO** Beyond food security, Brazil has also used its improved agricultural production to boost its energy security, becoming an international leader in the production of biofuels. Biofuels are liquid fuels produced directly from renewable natural sources (i.e. plant feedstocks or biological waste). In the mid-1970s, in response to the 1973 oil crisis, Brazil began to pursue the production of ethanol from sugar cane to use as a substitute for imported petrol. The choice of using sugar cane was also made in order to support sugar-cane farmers, whose investments in mechanisation and modernisation had been followed by falling sugar prices (see, for example, Hall et al. 2009). Thanks to this early start, Brazil has become an international leader in biofuel production. In fact, Brazil has been exporting its biofuel expertise to Africa for several decades now; as early as the 1970s a Brazilian company had installed its production technology in a methanol plant in Zimbabwe (Forrest 1982: 14).

The benefits of biofuel production for the Brazilian economy have been quite clear, as it has given the country greater energy security and kept more wealth within Brazil. The social and environmental impacts have been less impressive. Sugar cane ethanol production has mainly benefited the wealthier

states in the country, has contributed to land concentration, and has led to the consolidation of the market under the control of a small group of large corporations. Efforts have been made to avoid this outcome as Brazil steps up its production of soya bean and castor seed-based biodiesel, with policies in place to keep more feedstock production in the hands of small-scale farmers. However, stakeholders in the biodiesel industry believe that this strategy will fail, stating that without massive government intervention 'biodiesel is going to be another [ethanol] with only large-scale producers' and that 'the whole social program is not going to work' (Hall et al. 2009: S83).

These issues remain concerns as Brazil becomes increasingly involved with African countries as a development partner and investor, at the same time as many of these countries are seeking to convert arable land to biofuel feedstocks. Biofuel crops are frequently competing with food crops in Africa, a serious problem in countries struggling with food insecurity. In Mozambique, biofuel production is currently expanding and is seen as holding great potential for economic development, with involvement from the Brazilian government and private sector, but it is also contributing to social and political conflict. The next section examines the rise of biofuels in Mozambique, Brazil's role, and the implications of biofuel production for food security in the country.

### **Biofuels, land use and food security in Mozambique**

Mozambique has made great strides towards reconstruction in the two decades since it emerged from almost 30 years of war. Yet peace has not significantly changed the country's status as one of the world's poorest and most deprived states. Mozambique currently ranks as 184 out of 187 countries in the United Nations Development Programme's Human Development Index (HDI), and while its overall HDI score has been rising slowly, it has not kept pace with the advances of other countries (UNDP 2011). The country's child mortality rate is one of the highest in the world at 142 per 1,000 (*ibid.*). According to the Food and Agriculture Organization (FAO), over one-third of all Mozambicans (38 per cent) are undernourished (FAOSTAT 2011), and the majority of those in poverty suffer from acute malnutrition. One study in 2006 estimated that malnutrition has productivity costs in Mozambique of at least US\$185 million annually, or about 6 per cent of the gross domestic product (GDP) at the time (Dista and Vicente 2009).

Poverty and hunger are incendiary political and social issues in Mozambique, as the global community was reminded in September 2010 when riots erupted in the capital of Maputo and the nearby industrial city of Matola in response to government-mandated price increases on staple foods and other necessities, such as water and electricity. In the aftermath of the riots, which occurred against a backdrop of high global commodity prices, many commentators referred to the events as 'food riots' and sought to tie them to

food prices on the international market, although food prices in fact remained lower than in 2008, when riots had previously taken place, and the crisis in Mozambique was a result of deeper structural problems that have hobbled the country's development (see Thaler 2010a for a longer discussion).

The agricultural and fisheries sectors in Mozambique provide employment and subsistence for over 80 per cent of the population (FAOSTAT 2011), with the vast majority of this activity taking place on small family farms. Mozambique's development strategy, which has frequently been externally determined due to the country's high level of aid dependence,<sup>5</sup> has been focused mainly on large-scale extractive and industrial projects. These projects have succeeded in boosting Mozambique's GDP, allowing the country to be presented as a success story by groups such as the World Bank, yet they have done little to uplift the majority of the population, creating a two-tiered development system whereby domestic elites and transnational corporations prosper from the country's natural resources while the poor masses are accorded secondary attention unless they create a situation, such as the 2010 riots, in which their voices are heard.<sup>6</sup>

Much of Mozambique's economic growth has occurred in the energy and mining sector, as foreign capital has been used to undertake large-scale exploration and exploitation of the country's coal, oil, gas and mineral resources to meet the global demand for fossil fuels and metals. The human capital for these types of projects, however, tends to be imported, reducing the potential job creation impact, and projects are often initiated on the condition of tax breaks or exemptions, depriving the state of potential revenues that could be used to fund social programmes. The Mozambican government continues to focus on industrial mega-projects to drive growth,<sup>7</sup> but it has also begun to recognise the need to invest in agriculture as part of its development strategy. The government's 2010–14 Poverty Reduction Action Plan (Plan d'Action pour la Réduction de la Pauvreté or PARP) makes the improvement of agricultural and fisheries productivity its primary objective, with promoting employment given the next most importance (Republic of Mozambique 2011), a welcome emphasis in the face of the continued growth of extractive industries.

The PARP is consistent in its calls to improve the situation of small-scale, family farmers, through improved access to factors of production and better market access. This supposed focus on small-scale farmers and food crops, however, is belied by the actions of the Mozambican government in advancing its overall agricultural policy. Instead of seeking to improve small-scale agriculture to boost food production, the government has sought foreign investment to capitalise on the global spike in demand for biofuels.

*The development of biofuels in Mozambique* Mozambique is considered to have one of the greatest potentials in the world for the production of biofuels due to the availability of uncultivated or underused land, favourable climate and

low population density (see Nhantumbo and Salomão 2010: 7). According to government estimates from 2006, only about 10 per cent of Mozambique's 36 million hectares of potential agricultural land are currently under cultivation; however, more recent land-zoning exercises have determined that only 7 million hectares are 'available for allocation to land-based economic activities, including biofuels' (ibid.: 13) and there are questions as to the accuracy of the zoning that has been conducted. Mozambique's population has also been growing at an increasing rate since 2000, so land use estimates may quickly become outdated as demand from family farmers increases. Critics are wary of government statistics on the stock of so-called 'uncultivated or underused land', as quite often it refers to land that is used by the community as common land or to forest areas that are useful for maintaining the country's biodiversity – both flora and fauna.

New zoning efforts are planned, but, in the meantime, Mozambique's government, in concert with foreign investors, has made a strong push to turn the country into a world leader in biofuel production. The ultimate goal of this endeavour is clearly to increase foreign investment and exchange; a study by Mozambique's national oil company has determined that domestic demand for biofuels is essentially negligible, due to the small size and unindustrialised character of the Mozambican economy (Petromoç 2008).

Mozambique began its biofuel initiatives in the mid-2000s, with the 2007 rural development strategy including a specific objective:

to promote the production, consumption, transformation and export of fuels alternative to conventional ones, namely biofuels produced from crops such as sugarcane, soybeans, sunflower, ground nuts, and jatropha, among others. (Republic of Mozambique 2007: 46)<sup>8</sup>

This initial official catalyst for biofuel development was followed in 2009 by the formulation of an elaborated national 'Policy and Strategy for Biofuels' (Republic of Mozambique 2009). The policy was presented as possessing two primary motivations: i) the promotion and exploitation of agriculturally produced biofuels to improve energy security and sustainable development (while reducing greenhouse gas emissions); and ii) responding to a need to reduce the importation of processed fossil fuels. The policy includes a laudable statement of principles, which highlights the need for inclusion of small-scale farmers; for transparency in the development of biofuel projects; for environmental and social sustainability; and for fiscal sustainability. Special mention is also given to the necessity of evaluating potential biofuel projects 'to avoid unacceptable risks in terms of food security, loss or degradation of habitat or biodiversity, and other environmental damage' (ibid.: 16). Surprisingly, though, given the pessimistic assessment by Petromoç (a semi-government entity dealing with energy issues) of the potential for a domestic biofuel market in Mozambique,

the strategy emphasises plans for the establishment of a national biofuel market; these plans required the enactment in 2012 of regulations stating that all petrol and diesel should be blended with ethanol and biodiesel respectively, forcing the creation of a market.

More recently, the increased interest in biofuel production in Mozambique in response to European Union (EU) requirements for biofuel use has spurred a further examination of the sustainability of biofuel production in the country. To help meet the sustainability provisions of the EU regulations, the Brazilian government partnered with the EU to create a Sustainable Development of Bioenergy project. Under the auspices of this project, an investigation is currently being carried out by the Brazilian Fundação Getulio Vargas (FGV) into the viability of sustainable, environmentally responsible biofuel production in Mozambique. The study is funded with US\$800,000 from Brazilian mining giant Vale (Companhia Vale do Rio Doce) (Agência de Informação de Moçambique 2011), which operates the Moatize coal mine in Mozambique and has been involved in sugar cane ethanol production in Brazil. This Brazilian assistance is imbued with a heavy dose of self-interest – Brazilian ethanol is subject to high EU tariffs, but ethanol produced by Brazilian companies in Mozambique is taxed minimally (Reuters 2010).

Since the initial political and strategic groundwork was laid for biofuel development in Mozambique, dozens of projects have been proposed, although few have come to fruition. The biofuel strategy called for concentration on a few feedstock crops, namely sugar cane and sweet sorghum for ethanol production and jatropha and coconut for the production of biodiesel (Republic of Mozambique 2009: 17), but the vast majority of projects have involved sugar cane and jatropha.

*Sugar cane ethanol* Sugar cane ethanol has been the major biofuel that has entered into production in Mozambique. Sugar production throughout southern Africa has increased sharply in recent years as global ethanol demand has soared, with sugar production and exports nearly quintupling in Mozambique from 2000 to 2008 (F. O. Licht in Richardson 2010: 926). African countries have been attempting to emulate Brazil's success in sugar cane ethanol production, and to do so have relied greatly on Brazilian expertise and development assistance, their demand coinciding with Brazil's desire to increase South–South cooperation and leverage its historical and cultural ties to Africa for mutual economic development.

Brazil's official cooperation with Mozambique in the area of biofuels dates back to 2007, when Mozambique's President Guebuza signed an accord with Lula, the Brazilian president at the time, to establish technical assistance and exchange programmes and to explore market development, goals that have been reaffirmed and further formalised in subsequent agreements, with Brazil

planning to invest US\$6 billion in biofuel development in Mozambique (for example, Katerere 2009). The two countries joined with the European Commission in 2010 to sign an agreement establishing 'their commitment to work together with the objective of fostering the development of the bioenergy sector, focusing on biofuels and bioelectricity' (Agência de Informação de Moçambique 2010). Biofuels may even provide a nexus for South-South cooperation among the emerging economic powers, with the director of Mozambique's Investment Promotion Centre, Mahomed Rafik, suggesting, in light of Mozambique's free trade agreement with China, that a sugar cane project could emerge in which:

A South African company in partnership with a Mozambican company, and with the raw material being processed by a Brazilian company, may gain access to the Chinese market, because the product will be regarded as Mozambican. (Agência de Informação de Moçambique 2009)

A number of Brazilian corporations have developed plans to produce ethanol in Mozambique, generally through partnerships. Açúcar Guarani, a Brazilian subsidiary of transnational sugar company Tereos, has been involved in projects since buying a 75 per cent stake in Mozambican Companhia de Sena for US\$17.5 million in 2007 (Benitez 2007). The Sena mill is capable of processing 1.2 million tons of sugar cane per year, and plans have been developed with the Brazilian national oil corporation, Petrobras, to use molasses from Sena to make ethanol (Caminada and Nielsen 2011). As part of the partnership between Petrobras and Guarani, Petrobras is investing 1.6 billion reais (about US\$900 million) to purchase a 45.7 per cent share in Guarani (Tereos Internacional 2010). In August 2011, Petrobras announced plans to build its own ethanol factory in Mozambique for production for the domestic market in response to new Mozambican government requirements for ethanol to be added to all petrol at a 10 per cent level; Petrobras stated that if plans go forward, the factory would be built by Guarani (Macauhub 2011a). Brazil's sugar industry trade association, União da Indústria de Cana-de-Açúcar, has argued for increased involvement in biofuel development in Mozambique to attempt to replicate Brazil's success in producing ethanol and integrating it into the economy (UNICA 2011), and in 2009 ETH Bioenergia, a subsidiary of Brazilian construction giant Odebrecht, announced plans to build an ethanol plant in Mozambique, with an anticipated investment of approximately 2 billion reais (US\$1.1 billion) (TheBioenergySite News Desk 2011). Brazilian diplomats have also suggested that other corporations, such as oil and biofuel producer Cosan and sugar company Copersucar, may be interested in starting ethanol operations in Mozambique (Reuters 2010).<sup>9</sup>

*Jatropha biodiesel* *Jatropha* is a hardy plant that until recently was used mainly for windbreaks and to avoid erosion, although in Africa its oily seeds have



been used for bioenergy in Mali since the early 1990s (Henning 1996). *Jatropha* has frequently been touted by biofuel advocates because it is able to grow on marginal, degraded and semi-arid lands where it would be difficult or impossible to cultivate other plants, thus avoiding concerns about displacing food crops. This is perhaps one of the reasons why *jatropha* has received such emphasis in Mozambique, where President Armando Guebuza has been personally involved in the promotion of *jatropha* cultivation, as noted in the official biofuel strategy (Republic of Mozambique 2009: 14).

The most successful *jatropha* project to date was that of Sun Biofuels, a British company, which cultivated *jatropha* for the production of biodiesel that it planned to export to Europe for airline use. Sun made its first shipments from its fields in the central province of Manica to the German company Lufthansa in mid-2011, and was planning to expand its *jatropha* production from 3,000 hectares to 11,000 hectares. To achieve this expansion, the company was, according to Manager for Corporate Affairs Sergio Gouveia, seeking to draw in smallholder farmers to disperse *jatropha* cultivation beyond a plantation model. Gouveia dismissed concerns about impacts on food security by suggesting that farmers could use the income from *jatropha* production to buy food (TradeMark SA 2011), yet given the instability of food prices that led to the 2008 and 2010 riots, substituting *jatropha* cultivation for subsistence food production would seem to be a wholly irresponsible choice. However, shortly after its initial shipments, Sun Biofuels collapsed, destroying the livelihoods of farmers in Mozambique and Tanzania who had become dependent on the company (Carrington 2011).

Another major *jatropha* project was initiated by German company Elaion Africa in Sofala province, with plans to cultivate 1,000 hectares of *jatropha*. After planting initial test plots, however, the company determined that the soil quality was too low for profitable *jatropha* production, and instead switched to a forestry project on the land (Nhantumbo and Salomão 2010: 10). This case illustrates a problem that has emerged as research on *jatropha* has intensified: as expressed by Rob Bailis of the Yale University School of Forestry and Environmental Studies:

while *jatropha* can indeed grow on lands with minimal water and poor nutrition, ‘if you plant trees in a marginal area, and all they do is just not die, it doesn’t mean you’re going to get a lot of oil from them’. (Luoma 2009)

In order to be produced profitably, *jatropha* needs significant rainfall or irrigation, for it requires more water than any other biofuel feedstock crop (Gerbens-Leenes et al. 2009). It is possible that climate change in the coming decades will see increased rainfall in Mozambique, which could help alleviate this problem, but climate change models remain highly variable and uncertain (see Tadross 2009).



While most jatropha investors have been European, this sector has also felt Brazil's influence. The overall growth in biofuel production and policy development in Mozambique has been seen by some as galvanised by the interest and engagement of Lula, and Mozambican government plans for jatropha biodiesel production were modelled on a Brazilian system of smallholder cultivation of feedstocks to be sold to biodiesel companies, 'thereby increas[ing] rural incomes' (Justiça Ambiental and União Nacional de Camponeses 2009: 9). The Portuguese and Mozambican-owned Moçamgalp biodiesel project has also used Brazilian seeds for its jatropha plantation in Chimoio, with plans to grow 1,250 plants per hectare on a total of 10,000 hectares (ibid.: 36). Petrobras also signed an agreement in 2007 with Italian oil company Eni to jointly explore biodiesel production in Mozambique (Petroleum Africa 2007), though these plans have not yet resulted in any concrete projects.

### **Policy versus practice in Mozambican biofuel projects and effects on food security**

The ProCana project provides a stark illustration of the potential social, economic and environmental problems posed by biofuel production in Mozambique and other developing countries, and also demonstrates the failure of the government of Mozambique to uphold the principles it outlined in its own biofuel policy. ProCana was a project developed by a British corporation that planned to grow sugar cane and produce ethanol on 30,000 hectares in Massingir, in the southern province of Gaza. ProCana had signed a renewable 50-year lease on the land; all land in Mozambique is the property of the government, allowing favoured investors to secure huge tracts of land under long-term contracts with limited input from local stakeholders. This is symptomatic of the larger international problem of 'land grabbing', whereby foreign governments and corporations are buying or securing long-term leases to large portions of the arable land in developing countries (see, for example, GRAIN 2008; Cotula et al. 2009; Thaler forthcoming). Plans were made for Brazilian sugar company Dedini to supply a turnkey ethanol plant that would make use of Brazilian technology and would be capable of processing 438 million litres of ethanol per year (Christiansen 2008).

The allocation of land was immediately problematic. Despite claims that the land ProCana was acquiring was marginal and that therefore the project would not conflict with food production, outside researchers found the land in fact to be highly suitable and used for agricultural production, charcoal making and livestock grazing by local communities (Borras et al. 2011). The ProCana project also called for the displacement of several communities, including taking over land that had been allocated to people displaced by the creation of the Limpopo National Park (ibid.; Manuel and Salomão 2009). ProCana followed the letter of the law in that consultations were held with affected

communities, but agreements over land boundaries were then disregarded as ProCana encroached on family farmlands (*ibid.*), and there was a clear imbalance of power between an international corporation, which had already secured government support, and a group of poor peasant farmers (Borras et al. 2011). This power imbalance has been a problem with biofuel projects elsewhere in Africa and in the rest of the world (see, for example, Borras and Franco 2010). Consultations also tend to be gender-biased, with greater attention paid to male members of communities, even though women make up the majority of the rural labour force (Nhantumbo and Salomão 2010: 35).

Promises of job creation by ProCana and by biofuel projects that have been fully implemented have been dubious at best. ProCana's job creation estimates fluctuated based on assumptions about whether or not the project could be implemented on a mechanised basis or a non-mechanised plantation basis, with the latter option creating more jobs (Borras et al. 2011: 224). The sugar industry also has relatively low labour intensity, with many jobs only seasonal, and labour requirements far below those of other crops; in nearby Zambia, 'while 7,500 are formally employed in the sugar industry, around 200,000 people are informally engaged as outgrowers in the similarly sized cotton industry' (Tschirley and Kabwe in Richardson 2010: 993). Brazilian ethanol production, meanwhile, may be the most advanced in the world, but Mozambique and other countries should not emulate the manner in which the sugar cane that feeds it is produced: by workers toiling in dangerous 'slavery' conditions for wages of approximately US\$1,000 or less for a five- to six-month season (Höges 2009).

Some jobs may be created by biofuel projects, but the livelihoods of other community members are threatened. Biofuel projects frequently involve the permanent clearing of forests, removing opportunities for localised sustainable forestry and charcoal production. Sugar cane, like jatropha, also uses massive amounts of water, with the ProCana project, for instance, planning to irrigate its sugar cane with 407 million cubic meters of water per year from a nearby dam, depriving downstream subsistence farmers of water needed to grow their own crops and competing with cleaner hydroelectric power production (Borras et al. 2011: 223). The biofuel boom has also driven up land prices in much of the developing world, increasing the pressure on smallholder farmers to sell their land, while the relatively high prices of energy crops in comparison with food crops may induce farmers to join outcropping schemes in which they grow feedstock for large corporate producers. Increased landholding by bioenergy producers or industrial export farmers, as well as outcropping, shrinks local food production and shifts subsistence farmers from being autonomous food producers to being consumers at the mercy of the market and its fluctuations. The ProCana project collapsed in late 2009 after investors pulled out, and, similarly, Mozambique Principle Energy's ethanol factory project has ground to a halt and may also collapse due to market conditions (Macauhub 2011b),

highlighting the volatility of biofuel investments and the potential for negative outcomes for those whose livelihoods come to depend on the biofuel industry.

Brazil has been involved in some more general or food-focused agricultural initiatives in Mozambique. Embrapa is working on a US\$4.6 million soil conservation and recuperation project in northern Mozambique, looking to develop a successful model that can be applied across Africa (Barbosa et al. 2009: 77). Brazil is working with Japan to develop new crop varieties and to disseminate agricultural techniques and technologies that will allow a transformation of the Mozambican savannah into productive agricultural land, as occurred in Brazil's *cerrado*, and there are other collaborative efforts to improve agricultural research in Mozambique (ABC 2010c; World Bank 2011b). The Brazilian embassy in Mozambique also launched a programme in 2003 to give food subsidies to families in exchange for their children's school attendance, an initiative funded with donations from the Brazilian business community (Massingarella and Nhate 2006). In its initial stage, the programme provided grants of US\$20 to 100 families (ABC 2012), and total project costs were under US\$90,000 (AidData 2012). More recently, Brazil has committed to working to give about US\$2.4 million to the World Food Programme and FAO for a scheme to provide locally produced food to schools and vulnerable groups in Mozambique and four other African countries (FAO 2012). These projects are tiny, however, when compared with the hundreds of millions of dollars being invested in the biofuel sector in Mozambique, sending a strong signal about Brazil's priorities in Mozambique and in the rest of Africa.

### **Conclusions: Brazilian ambitions, African economies and defining development**

Brazil has sought to position itself as an equal development partner of, rather than a more detached donor to, African countries, building on its cultural ties and its own experience of socioeconomic development during the twentieth century. In practice, Brazil has taken a middle road in comparison with the competing emerging economies:

between the Chinese-style of engagement – which is highly political and supported by the weight of the state-run machinery behind investments and development initiatives – and the Indian approach – which is characterised more by private sector investments and entrepreneurial activities across the continent. (White 2010: 229)

So far, Brazil has been successful in constructing a 'softer' approach, in contrast to China, developing local capacity and building new markets rather than simply extracting resources (see, for example, Lewis 2011).

To its credit, Brazil has created and become involved with a number of initiatives in Mozambique and elsewhere in Africa that have the potential to

boost food security and improve livelihoods, such as the Africa–Brazil Agricultural Innovation Marketplace, which brings together Embrapa and African researchers, and efforts to create seed banks for family farmers. The majority of Brazilian aid and investment, however, aims to improve agricultural production for the global market in ways that are not sustainable. Biofuel projects in Mozambique are designed to meet the demand created by EU regulations. These regulations are supposed to reduce fossil fuel dependence and greenhouse gas emissions, but the carbon- and water-intensive farming practices and land use changes involved in the production of biofuel feedstocks may offset any environmental benefits (see, for example, Solomon 2010 for a review). A leaked internal World Bank memo places the blame for the rising prices that sparked the 2008 global food crisis squarely on increased biofuel production (Mitchell 2008), and biofuel production worldwide has been linked to negative effects on the land tenure and food security of smallholder farmers and other rural residents (for example, Dauvergne and Neville 2010).

Brazil's programmes are beginning to put more emphasis on the inclusion of smallholder farmers, and Mozambique's biofuel policy specifically seeks their inclusion in the production of feedstocks (Republic of Mozambique 2009: 19). However, this inclusion may come at the cost of the farmers' autonomy, subjugating them to the demands of large agro-industrial firms in outcropping schemes, forcing them to switch to more expensive technologies, and curtailing independent food production, changes designed to bring the farmers into the transnational capitalist system that is already exploiting Mozambique's limited resources.

Brazil claims that its overseas development assistance is to help other countries emerge from poverty, yet Brazil's interests in development assistance and its corporate investment interests are tied together in a 'neo-mercantilist' web (White 2010: 239), making it difficult to view Brazil's altruistic rhetoric as sincere and giving some credence to the critique that emerged as early as the 1960s of Brazil's interest in Africa as seeking a piece of the 'new scramble for Africa' (Ribeiro 2010: 76). The recent 'land grab' of over 6 million hectares of land in northern Mozambique for Brazilian farmers to produce soya beans, corn and cotton for export (IHU 2011) bears out these suspicions of Brazilian neocolonial leanings.

For food security to be promoted and protected in Mozambique and elsewhere in Africa, notions of development must be decoupled from the concept of economic growth within a capitalist system. Agricultural production for the global market has led to an unsustainable system in which crop diversity has plummeted; small-scale farmers have been forced off their land or into the service of large corporations; and a small group of companies controls the production and distribution of inputs and processed products, with, for instance, five transnational corporations controlling 65 per cent of the global

pesticide market (Gonzalez 2004: 425). Biofuel feedstocks in Mozambique are symptoms of a broken system of agriculture and aid; these crops are promoted and consumed by international actors who either blindly or wilfully ignore their negative effects. Emphasis needs to be placed on production for domestic markets, on production of food crops, and on the improvement of less capital-intensive farming techniques that will allow small-scale farmers to sustain themselves while maintaining their independence. At present, Brazilian development assistance and investments are more benign and less cold-bloodedly profit-driven than those of China and some other competing countries, but they remain exploitative nonetheless.

## **9 | South–South cooperation in agriculture: the India, Brazil and South Africa Dialogue Forum**

Alexandra Arkhangel'skaya and Albert Khamatshin

### **Introduction**

Agriculture in many low-income countries has the potential to be an engine of development and poverty reduction. Moreover, raising agricultural production in regions such as Africa, with abundant arable land, is critical to global food security in coming decades. However, achieving these objectives on a large scale would require a significant increase in public investment in agricultural research, rural infrastructure and skills development in the context of more supportive policies for agriculture at the national and global level.

The transfer of experience and technology to African countries through South–South cooperation can be particularly important for building a supportive international environment. An analysis of the India, Brazil and South Africa (IBSA) Dialogue Forum, a trilateral initiative between three emerging economies to promote South–South cooperation and exchange, is an excellent case study in the promotion of such cooperation in agriculture. The present study closely examines the IBSA Trust Fund, created in 2004 to combat poverty and hunger by emphasising local ownership and encouraging capacity building in the beneficiary community through the sharing of knowledge and experience.

### **South–South science and technology cooperation**

The history of South–South cooperation dates back to the 1955 conference in Bandung when certain African and Asian nations agreed to promote economic and cultural cooperation. The conference provided the impetus for the development of various South–South organisations in the 1960s and 1970s, with the Non-Aligned Movement (1961) and the Group of 77 (1964) being the most important. While South–South technical cooperation was discussed in some of these initiatives, there was no strategic framework for such collaboration until 1978, when the Buenos Aires plan of action was adopted at the United Nations (UN) conference on technical cooperation among developing countries. The plan described the technical cooperation approach as a:

vital force for initiating, designing, organising and promoting co-operation among developing countries so that they can create, acquire, adapt, transfer

and pool knowledge and experience for their mutual benefit and for achieving national and collective self-reliance, which are essential for their social and economic development. (United Nations 1978)

Since the adoption of the Buenos Aires plan of action, the UN has played a crucial role in supporting South-South cooperation. To coordinate its work in this area, it has set up a special unit for such cooperation managed by the United Nations Development Programme (UNDP). In commemoration of the thirtieth anniversary of the plan of action, in December 2009 the UN convened a high-level conference on South-South cooperation in Nairobi. At the conference, the need to strengthen this cooperation as an additional mechanism for enhancing growth and addressing the challenges facing developing countries was reiterated.

Interest in South-South cooperation in science and technology among developing countries has grown since the early 2000s. There are several reasons for this trend:

- The internet and other information and communication technologies facilitate South-South cooperation, allowing for the sharing of knowledge to the widest possible extent at minimal cost.
- The growing technological prowess of emerging countries such as India, Brazil and China has enabled them to take the initiative in collaborative research (including the provision of financial support) and to transfer technology to and share experiences with less developed countries.
- There is a continuing shift of research activities in developed countries from the public to the private sector. Private companies in developed countries are reluctant to share technology with public institutions in developing countries, preferring instead to preserve their technological advantage. This has shifted the focus of some developing countries on science and technology cooperation from the North to the South.
- Improving economic circumstances in certain developing countries have led to greater research and development spending, which itself creates opportunities and an impetus for greater collaboration.

Finally, the idea of South-South cooperation has gained renewed momentum with the rise of a handful of emerging countries, such as India, Brazil and China, which have become a major driving force in the world economy. These countries possess enormous technological and financial resources as well as expertise, which they are using strategically to promote South-South cooperation among developing countries through entities such as the Forum on China-Africa Cooperation, the India-Africa Forum Summit (IAFS) and IBSA. Official statements from these governments suggest that their relationship with Africa is based on the need and desire to pursue mutually beneficial

cooperation for common development. Moreover, the emerging countries need natural resources from Africa, to fuel their growing economies, and access to Africa's untapped market, as well as political support from African states on major global economic and governance issues.

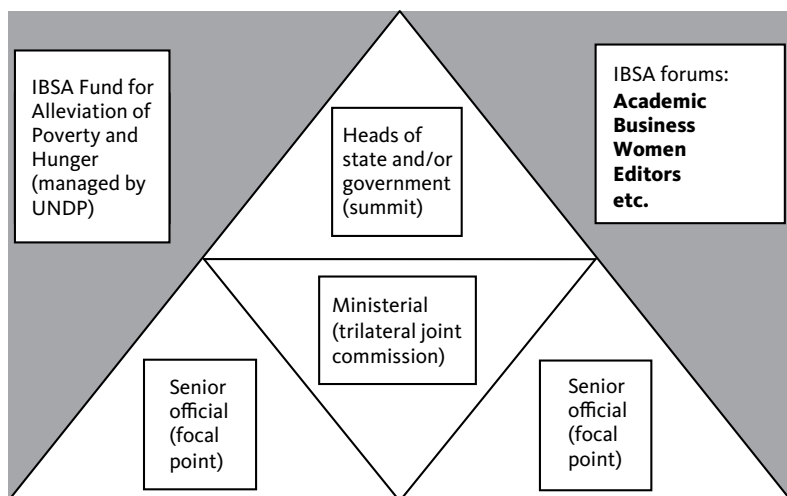
Africa, on the other hand, needs technology and technical expertise from India, Brazil and South Africa to address its development needs, particularly for agricultural development. At present, much private and public agricultural research and development in the world is devoted to corn, wheat, maize and rice, and very little is focused on widely consumed African products such as cassava, millet and sorghum. Moreover, public agricultural research institutions in Africa suffer from significant funding shortages, and are thus unable to expand research on drought-resistant crops. In this regard, cooperation between IBSA member states and African countries with similar agro-ecological conditions could provide a unique opportunity to share experiences, appropriate technologies, locally relevant skills and successful institutional modalities that African countries can replicate. Although IBSA is relatively new, the initiative has begun to promote joint research between African institutions and leading research centres in IBSA countries, focusing on disease-resistant strains of cassava and sweet potatoes (IAASTD 2009).

Cooperation in the agricultural sector is also increasingly shaped by the concept of food outsourcing. There is growing concern about food security in some countries that previously had achieved agricultural self-sufficiency. In India, where farmers have drilled some 20,000,000 irrigation wells, water tables are falling and wells are starting to dry up. It is estimated that 175,000,000 Indians are being fed grain produced by over-pumping. In China, over-pumping is concentrated on the North China Plain, which produces half of China's wheat and a third of its corn. In Saudi Arabia, wheat production is collapsing because the non-replenishable aquifer the country uses for irrigation is largely depleted (Brown 2011). At the same time, there is a great potential for boosting the productivity of agriculture in Africa. Therefore, these countries should be interested in the cost-effective transfer of appropriate and advanced clean technologies to Africa to help initiate another green revolution on the continent. It is also important to note that, in a sense, South-South cooperation in agricultural outsourcing does not mean acquiring land for production of food for one's own use ('land grabbing'), but a 'win-win' situation whereby high productivity in African agriculture is to be achieved and the surplus of food is to be shared with partner countries.

### **The India–Brazil–South Africa Dialogue Forum**

IBSA is a trilateral initiative intended to promote South-South cooperation in the field of development. It emerged out of a dialogue between three leaders, Atal Bihari Vajpayee (India), Luiz Inácio Lula da Silva (Brazil) and





**9.1** IBSA's institutional mechanisms

Thabo Mbeki (South Africa), during a Group of Eight (G8) summit in 2003 in Evian, France. The establishment of IBSA was formally announced on 6 June 2003, with the adoption of the Brasília Declaration by the ministers of foreign affairs of the three countries. The declaration focused on issues of common concern, including reform of the UN, threats to security, social equity and inclusion, racial discrimination and gender equality.

The forum's institutional mechanisms include consultations at senior official (focal point), ministerial (trilateral joint commission) and heads of state and/or government (summit) levels (see Figure 9.1). In addition, the forum facilitates interaction among academics, businesspeople and civil society. IBSA has an open and flexible structure and has no branches or permanent executive secretariat or even a formal document promulgating its organisational structure. The last summit was held in Pretoria from 17 to 19 October 2011. To deepen mutual knowledge and explore common points of interest in different sectors, 17 joint working groups were established, including agriculture, science and technology, climate change and energy (IBSA 2012).

Each IBSA member country has ambitions to play a leading role in its respective region as well as in global affairs. IBSA supports the role of the UN in global matters and the three member countries take a leading part in the organisation's activities, particularly in resolving major global challenges such as peace and security, environmental issues and global development and poverty reduction. The IBSA countries subscribe to the Millennium Development Goals and actively develop joint positions in order to achieve shared international aims. They also actively seek major reforms in global governance, particularly the reform of the UN Security Council, with each seeking a

permanent seat. These countries have also actively campaigned for improved market access for developing countries' products as well as the cancellation of foreign debt owed by developing countries to creditor nations.

### **Achievements and challenges**

IBSA's achievements can be divided into four areas: political achievements; working group achievements in particular areas of cooperation; the IBSA Fund for Alleviation of Poverty and Hunger; and achievements in other fields (Arkhangelskaya 2010). The political achievements are evident in the joint positions expressed in the declarations of heads of state and in government and ministerial communiqués. Although the three countries do not agree on everything, they take common positions on a number of issues at the multi-lateral level. Joint coordination is most evident at the UN, where there is 96 per cent vote convergence among IBSA countries on the issue of reforming global institutions, especially the UN Security Council. IBSA countries have also been vocal about the reform of the governance of the World Bank and International Monetary Fund.

With regard to reforming the multilateral trading system, the IBSA countries have been the most vocal critics of the unbalanced global trade regime (IBSA 2011). While in principle there is general consensus among them on the need to level the playing field in global trade, they nevertheless take opposing positions on agricultural subsidies, trade-related aspects of intellectual property rights and non-tariff barriers to trade. On agricultural trade, for example, India's position is quite different from that of Brazil and South Africa. India wants protection for its farmers, while Brazil and South Africa advocate comprehensive liberalisation of agricultural trade. In some respects, India's position is closer to that of many African countries, which regard indiscriminate liberalisation of agricultural trade as a threat to their small-scale farmers, who will be unable to compete in a liberalised global trade regime.

One of the main indicators of the effectiveness of the forum is trade. Intra-IBSA trade grew impressively from US\$3.9 billion in 2003 to about US\$12 billion in 2009. The target for 2010 was US\$16.1 billion, and all indications are that this amount was significantly surpassed. The new goal for intra-IBSA trade by 2015 is US\$25 billion per annum (Campbell 2011).

Despite the potential of IBSA to promote African development, a number of obstacles stand in the way. These include the trade restrictions of other associations in which they are participating; the relatively small size of the South African economy; the need to standardise internal processes; simplification of the visa regime; language barriers; and geographical distance. There are also limited complementarities between the three markets due to the fact that all three countries produce similar goods and compete for access to the markets of Organisation for Economic Co-operation and Development countries.

Moreover, each country is part of a regional trade bloc, and there are no mechanisms to extend reciprocal trade arrangements between these blocs. South Africa is a member of the Southern African Customs Union (SACU) while Brazil is a member of the Mercado Común del Sur (Mercosur), both of which forbid individual members from signing free trade agreements with any other country outside the free trade zone and extending its benefits to other members. This is one of the main obstacles to development cooperation within IBSA. Mercosur comprises Argentina, Brazil, Paraguay, Uruguay and Venezuela, with a population of 250 million people, while SACU comprises South Africa, Botswana, Lesotho, Swaziland and Namibia, with a population of 51 million (Arkhangelskaya 2010). In addition, the three IBSA countries are also members of the BRICS (Brazil, Russia, India, China and South Africa) grouping, and it is too early to tell how dual membership affects policy coherence in IBSA. On 15 April 2010, the first joint BRICS/IBSA business forum was hosted, with business delegations from Brazil, the Russian Federation, India, China and South Africa discussing the commercial interests of these major emerging economies with a view to furthering commercial ties. Therefore, it seems that dialogue among the groupings could be more effective than integration of such blocs. As a result, IBSA can be seen as an emerging 'bridge' between the three continents of the South.

### **IBSA–Africa cooperation in agriculture**

Agriculture in India, Brazil and South Africa plays different roles. In 2010, the agricultural sector contributed about 19 per cent to gross domestic product (GDP) in India, 5.8 per cent in Brazil and 3 per cent in South Africa. The agricultural share of GDP has been declining in these countries, which is consistent with theories of economic development. However, agriculture remains an important source of employment, especially in India. About 52 per cent of the total population in India, 14 per cent in Brazil and 13 per cent in South Africa depend on agriculture for their livelihoods. The amount of arable land per agricultural person is the lowest (0.28 hectares) in India, followed by Brazil (2.2 hectares) and South Africa (2.5 hectares). In Brazil, about 50 per cent of farms are of less than 10 hectares in size (compared with an average farm size of 68 hectares) and cover about 3 per cent of the land. On the other hand, in India farms larger than 10 hectares are rare. Over 86 per cent of the farms in India are of less than 2 hectares, and they cover 45 per cent of the land (IBSA 2010).

Each IBSA member state is deeply involved in South–South agricultural cooperation with Africa. India, through the IAFS launched in 2008, aims to strengthen cooperation, especially with the transfer of agricultural technologies that meet the real needs of small-scale farmers in Africa. India is one of the lead actors in tropical technology, not only in high-technology packages but particularly in lower-level technology, which is important in meeting farmers'

needs. The Indian experience is being shared through the National Research Development Corporation, the Central Food Technological Research Institute, the Council of Scientific and Industrial Research, and the Indian Council of Agricultural Research (Kumar 2010).

Brazil's projects in Africa were initially focused on the Lusophone countries of Angola, Mozambique and Guinea-Bissau. However, following the opening in Accra in 2006 of an office of Empresa Brasileira de Pesquisa Agropecuária or Embrapa (the Brazilian agricultural research and training institution established in 1973, which has been a driving force in national and international agricultural development), a number of other countries, including Ghana, Benin, Guinea, Kenya and Ethiopia have signed technical cooperation agreements. Brazil is looking towards a broad partnership with all members of the African Union (AU) in the transfer of technology, emphasising the specific demands of each country in projects for agricultural development. Moreover, Embrapa Africa develops technical assistance initiatives and opportunities for training and development of human resources as well as exploring opportunities for Brazilian agribusiness. Embrapa Africa's work covers the areas of agro-energy, growing and processing tropical fruit, cassava and vegetables, post-harvest technologies, beef and milk production and managing forests.

South Africa is a leader on the continent in agricultural technology and is a key player in joint research and development projects with the AU. One of many examples is the development of low-cost and low-risk plant biotechnology techniques, which may be within reach of rural and disadvantaged farmers and allow them to obtain increased and sustainable crop yields. In Kenya, for example, tissue culture of disease-free banana plantlets, obtained through cooperation between the Kenya Agricultural Research Institute and the South African Institute for Tropical and Subtropical Crops, has helped former coffee-growing farmers use biotechnology for development and to make the transition to a new source of income (Da Silva et al. 2002).

As IBSA countries have developed substantial capabilities in the agricultural sector, there are significant synergies between them with regards to agricultural cooperation. The main coordinating body in this sector is the joint working group on agriculture. This working group meets at least once a year and is presided over by a representative of each country on a rotating basis. At the fourth summit of IBSA heads of state and government in Brasília in April 2010, the group adopted the 'Future of Agriculture Cooperation in IBSA' document, which indicated the following areas for coordination:

- *Food processing:* Brazil and South Africa have the most advanced food processing sectors, particularly in processing and adding value to a wide variety of tropical products. They are positioned to share this expertise with African countries that need to improve their agricultural value chain.

- *Food safety measures:* One key impediment for African countries in accessing markets for agricultural products in developed countries has been their inability to meet the strict sanitary and phytosanitary measures. IBSA countries are in a position to share their experiences in complying with these measures.
- *Promoting joint agricultural research and development:* IBSA countries have developed significant technological capacity in different fields of agricultural research. As Brazil has already done by establishing an Embrapa office in Accra, the three countries can undertake a joint initiative to provide regular training and undertake joint research with African countries, and to transfer well tested, suitable agricultural technology to African countries.
- *Information and communications technology (ICT) for agricultural development:* As the IBSA countries move up the technological ladder, particularly in ICT, they have increasingly relied on such technology to promote development and share information and experience with governments, the private sector and civil society actors. In terms of South–South cooperation, they have identified ICT as the best way to reach farmers and research institutions so that African countries can strengthen their own capacities.
- *Capacity building and exchange of human resources:* Already, each of the IBSA members has established bilateral programmes for capacity building and exchange of human resources. Each provides long- and short-term scholarships to African students and civil servants in a number of agricultural fields.

These programmes need to be expanded further. The IBSA document proposes a study to highlight the synergies, complementarities and comparative advantages of each country. This study will include scenario planning and analysis, which will provide broad projections for agriculture over the next 25 years or so. This attempt to establish long-term agricultural cooperation planning is unique among South–South initiatives (IBSA 2010).

According to the ministerial communiqué from the seventh IBSA trilateral commission meeting (held in March 2011 in New Delhi), the agriculture joint working group is interested in collaborative activities that focus on the diagnosis and control of trans-boundary animal diseases; viticulture training programmes; integrated pest management; soya bean production; and value addition (South Africa Government 2011). Other working groups are also involved in agriculture-related cooperation. The energy working group signed a memorandum of understanding on biofuels as early as 2006. Although biofuels appear to be controversial, cooperation in this area continues among IBSA countries. A workshop on the production and use of biofuels was held in Brazil in September 2010 and a workshop on technical specifications and standards for biofuels was hosted by South Africa in December 2010.

In addition, the IBSA micro-satellite project and the initiative on nano-technology were announced at the conclusion of the fourth summit in Brasília to address common challenges in climate studies, agriculture and food security. The nanotechnology project is a collaborative research and development programme between the departments of science and technology of the three countries. As part of this initiative, South Africa's North-West University has built a treatment plant that incorporates ultrafiltration membranes to clean brackish groundwater in a rural village. The plant removes pollutants such as chloride, nitrate, phosphate and sulphate to produce safe drinking water for domestic and community use. In Brazil, Embrapa is developing a biodigestion system using nanofilters to clean irrigation supplies and make the water safe for drinking. Embrapa is also developing magnetic nanoparticles to treat water contaminated with pesticides. This class of technology seems especially suitable for removing organic pollutants, salts and heavy metals from liquids (de Paula Herrmann and Brum 2009).

### **IBSA Fund for Alleviation of Poverty and Hunger: the case of Guinea-Bissau**

At the fifth IBSA heads of state summit, the leaders emphasised the need to support small-scale and subsistence agriculture and to grant greater market access for their products, as well as the need for increased sharing of intellectual property that could provide greater resilience in addressing agricultural development (IBSA 2011). The IBSA Trust Fund demonstrates the true potential of the IBSA grouping and was created in 2004 within the IBSA dialogue forum. Projects are carried out under the IBSA Trust Fund in collaboration and consultation with partner countries through South-South cooperation mechanisms. The fund, managed by the UNDP, allows IBSA countries to initiate and finance poverty reduction projects in other developing countries.

Each IBSA country contributes US\$1 million per year to the fund. The UN honoured the governments of India, Brazil and South Africa by awarding IBSA the 2010 Millennium Development Goals Award for South-South Cooperation for the innovative and successful projects undertaken through the IBSA Fund. This cooperation was recognised as 'a breakthrough model of South-South technical cooperation'. So far, three projects have been completed:

- *Development of agriculture and livestock in Guinea-Bissau:* Training in improved agricultural techniques as well as water management and control was provided. A new rice seed that IBSA introduced in Guinea-Bissau allowed the country to have a second harvest every year, thereby helping to combat hunger.
- *Collection of solid waste to reduce violence in Carrefour Feuilles, Haiti:* This programme has promoted a culture of waste disposal, collection and

recycling, thereby generating employment, reducing disease, preventing flooding in garbage-clogged canals and reducing environmental impacts.

- *Support to the infrastructure of the island of São Nicolau, Cape Verde*: This includes the refurbishment of two isolated health clinics by employing local workers.

In addition, other initiatives are being implemented: an HIV/AIDS testing and counselling centre in Burundi; a sports complex in Ramallah and a school in Gaza, Palestine; infrastructure and capacity development to provide quality services to special needs children and adolescents in Cambodia; and supporting an irrigation scheme in Nam Sa, Laos.

In Guinea-Bissau, IBSA partnered with the ministry of agriculture to improve agricultural yields and improve food self-sufficiency. The initiative had four elements: improving livestock production; climate change mitigation through water management and anti-erosion measures, including hydraulic infrastructure (small dams, canals, drainage, etc.); skills development through the sharing of experience; and rural electrification. The climate mitigation initiative is expected to reduce soil salinity and enable the use of 700 hectares of low-lying land for rice production. The skills development component specifically targeted 4,500 poor farmers (2,600 of whom were women) and provided training in modern farming techniques to enhance rice, citrus and mango production. The project ran from February 2006 to April 2007 and cost roughly US\$0.5 million (Task Team on South-South Cooperation 2010). The rural electrification component was designed to extend the benefits of solar energy systems to 25 villages, a step deemed essential for increasing agricultural productivity (UNDP 2012). These interventions are expected to improve food security and reduce poverty in 13,000 rural households; enhance livelihood opportunities in 24 villages through sustainable natural resource management; and increase non-farm employment by strengthening the processing and marketing of agro-products and by facilitating transportation to markets. In sum, IBSA has shown through its activities in Guinea-Bissau how small, targeted interventions can make a huge difference in raising the productivity of small-scale farmers through capacity building and experience sharing.

## **Conclusions and the way forward**

More than 30 years have passed since the adoption of the Buenos Aires plan of action, but South-South cooperation has only recently emerged on a significant scale. Southern nations share the possibilities and problems of development. Developing countries did not train a sufficient number of qualified scientists to whom they could turn for advice on the problems they faced or in the practical application of knowledge to agriculture in particular. Most of the countries cannot afford their own systems of agricultural research, so

that much closer cooperation with other countries is necessary and desirable. South–South cooperation facilitates sustainable, low-cost solutions to existing problems. It also helps fill the gaps in research and technology relevant to the poorest and facilitates experience sharing as well as skill transfers. Such cooperation should be driven by the principle of horizontality and take the form of a mutually beneficial partnership that goes beyond traditional top-down development aid.

Growing technological advances in India, Brazil and South Africa allow them to pursue mutually beneficial cooperation with African countries. IBSA, along with other South–South cooperation forums, is an instrument for accelerating agricultural production and for facilitating institutional development and the transfer of technology, skills and experience among the developing countries themselves. The key question is whether Brazilian or Indian technology or development practices are adapted to local African realities on the basis of a thorough assessment of the challenges and opportunities. The way forward for IBSA must be based on adaptive cooperation that takes into consideration the interests of African countries. Existing institutional arrangements on the ground, such as the Comprehensive Africa Agriculture Development Programme and the Forum for Agricultural Research in Africa can serve as the appropriate platforms for learning about and sharing successful experiences from Brazil, India and South Africa.





## PART IV **China**



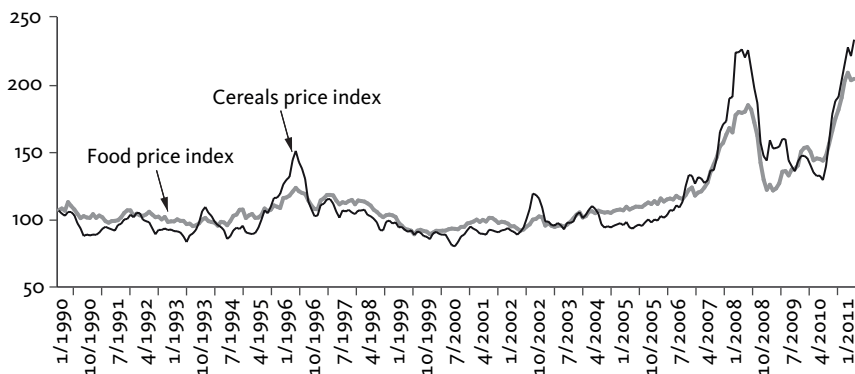
# 10 | China's food security challenge: what role for Africa?

Simon Freemantle and Jeremy Stevens

## Introduction

The world's population surpassed the 7 billion mark in 2011. Based on current growth projections, by 2050, 9 billion people will occupy the earth, igniting Malthusian concerns about the world's ability to provide sustenance for this rising population (United Nations 2010b). Indeed, the United Nations' (UN's) Food and Agriculture Organization (FAO) estimates that by 2050 food production will have to increase by 70 per cent from today's volumes in order to feed the globe's larger, more urbanised and increasingly affluent population (FAO 2010). As such, a total average annual net investment in world agriculture of around US\$83 billion is necessary. Importantly, the nexus of demand is originating in the world's swiftly advancing, highly populated, emerging economies. Yet many emerging markets are faced with the challenge of meeting the rising demand with diminishing local resources – principally arable land and irrigable water. Two recent and pronounced global food price hikes, in 2008 and 2011 (see Figure 10.1), underscore the challenge of meeting rising demand in the face of diminishing resources.

Within this climate, attention is turning to those nations or regions offering great agricultural potential. Unsurprisingly, China and Africa, respectively, have



**10.1** Global food price hikes (2008 and 2011)

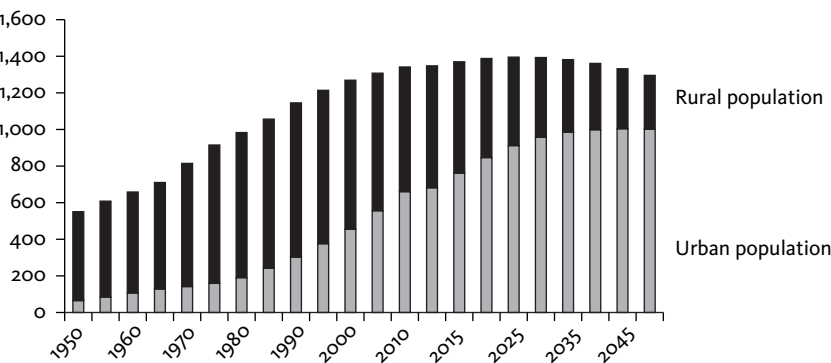
Source: FAO; Standard Bank Research (SBR)

been thrust to centre stage. Emotionally fuelled debates are commonplace because it is frequently assumed that China is laying an expansive agricultural cooperation framework across Africa, tapping into the continent's immense potential as a means of securing long-term domestic food security. As with much Sino-African discourse, the predominant, and often untested, estimations are overwhelming. Separating truth from fiction is vital but difficult. This chapter attempts to assess China's current agricultural demand and supply challenges, considering where (if at all) Africa is positioned with regard to Beijing's critical response to ensuring long-term food security for the country.

### Rising demand in China

Food consumption in China has increased at an average annual rate of 23.4 per cent (five times faster than in India, for example), from US\$57 billion in 2000 to US\$463 billion in 2010 (BMI 2012). While per capita food consumption levels in China are comparatively low when measured against other advanced and emerging economies, China's large (and still growing) population means that absolute consumption is vast. In fact, China consumes the second-highest amount of food in the world, after the United States (*ibid.*). Domestic food demand is expected to grow at double-digit rates over the next ten years (Trinh et al. 2006).

The dramatic increase in China's demand for agricultural commodities is unlikely to abate. Two mutually reinforcing factors (rising incomes and urbanisation) principally underpin this assertion. Indeed, the pace of urbanisation has been so rapid that, where in 1980 China's urban population amounted to around 190 million people, or 20 per cent of the population, today this figure stands at almost 650 million and roughly 47 per cent (United Nations 2010b). In a few years, China will cross an important threshold in that, for the first time in the country's history, more than half of its population will be urbanised (see Figure 10.2).



10.2 China's large and increasingly urban population (1950–2050)

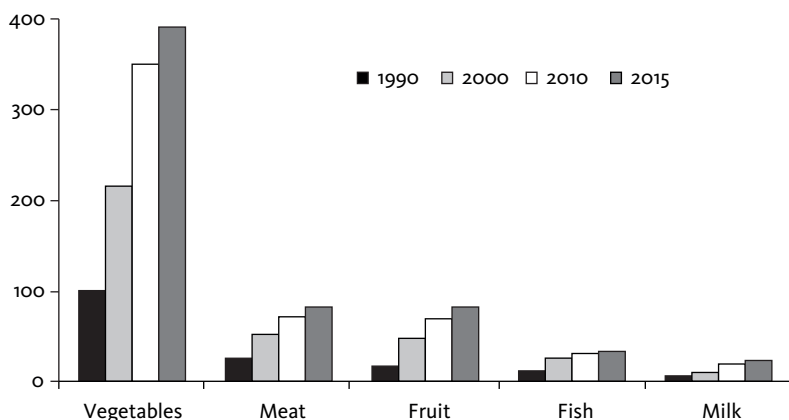
Source: UN; SBR

Urbanisation has given rise to, and been prompted by, increasing affluence in China. Indicatively, China's gross domestic product per capita has grown more than fivefold in the past decade, from US\$1,038 in 2001 to over US\$5,800 today (IMF 2012). Naturally, urban incomes have expanded at a faster rate: according to CEIC data, between 2002 and 2010 urban income per capita rose from around RMB (renminbi) 8,000 to over RMB 21,000, compared with rural income per capita in 2010 of just over RMB 7,000 (CEIC 2011).

Rising incomes are not only increasing the amount but also the variety of food consumed by China's largely urban middle class. In essence, as incomes go up, per capita consumption of staple foods declines proportionately, while the demand for protein (particularly meat) increases, often substantially. Consumption patterns in relatively wealthy urban centres confirm this: Chinese annual urban per capita consumption of beef and mutton has increased from 1.7 kilograms in 1980 to 3.4 kilograms in 2008; poultry from 1.2 kilograms to 8.0 kilograms; and milk from 4.1 kilograms to 15.1 kilograms (USDA 2011). This new demand has meant that China currently produces and consumes more than half the world's pigs each year.

An inevitable offshoot of this shift has been a tremendous spike in demand for the agricultural produce that feeds animals. In fact, in China, much like in the US, the animal feed industry is by some margin the largest purchaser of corn, feed grains and soya bean meal. Today, China consumes 25 per cent of the world's soya beans, 20 per cent of the world's corn and 16 per cent of the world's wheat (*ibid.*). Meanwhile, adding to supply tensions, industrial activity has also spurred demand for certain agricultural commodities. For instance, motor vehicle production in China has stimulated demand for rubber: in 2006, China accounted for almost one-quarter of worldwide rubber consumption. And between 1998 and 2007, textile manufacturing tripled demand for cotton (*ibid.*). Moreover, China is also investing in biofuel production as part of its strategy to reduce its dependence on expensive oil imports and its high level of greenhouse gas emissions (Freeman et al. 2008).

Looking ahead, food demand will increase further. Income growth, especially compensation to employees in both rural and urban areas, will prove a compelling force in driving personal consumption. Meanwhile, favourable demographics, urbanisation, a generalised asset deficit, low levels of indebtedness and currency appreciation will provide support for consumption. As a result, the average per capita consumption of meat in China is expected to increase from 7.2 kilograms in 2010 to 8.2 kilograms by 2015 (USDA 2011). Similar growth is expected in fruit and vegetables (see Figure 10.3). It is anticipated that China's total food consumption expenditure will double to over US\$1 trillion by 2015 (BMI 2012). And, of course, should an average person in China consume just half of what an average American consumes, total Chinese consumption would be more than double that of the US. In short,



**10.3** China's increasing food consumption (kilograms/litres consumed per capita)

Source: Economist Intelligence Unit; SBR

demand for agricultural produce will continue to rise and supply will need to respond.

### Increasing strains on agricultural supply

While demand is relentlessly surging, China's agricultural sector is facing pressure on a number of fronts. Perhaps most prominently, rapidly accelerating urbanisation and industrialisation have encroached on farmland, and have led to the diminution of China's water resources. Environmental concerns are epitomised by spreading desertification: about 4.5 billion tonnes of soil are scoured away each year by erosion in China, at an annual estimated cost of RMB 200 billion (approximately US\$32 billion) this decade alone (Marks 2008). Between 1996 and 2006, China is believed to have lost almost 9 million hectares of farmland. It is also estimated that China's total cropland is expected to further decline from 135 million hectares in 2003 to 129 million hectares in 2020. Importantly, China is approaching the point established by its leaders as the 'red line' for food security: 120 million hectares of arable land (Bräutigam and Xiaoang 2009).

Meanwhile, by 2000, almost half of China's cities were already facing water shortages. Worryingly, agriculture is unable to compete with industry in terms of the productivity of water usage: for instance, 1,000 tonnes of water produces 1 tonne of wheat, which has a market value 70 times lower than the manufactured output the same amount of water yields. Since the early 1990s, industrial water demand in China has grown at an annual rate of some 6 per cent (Amarasinghe et al. 2005). If this pattern continues, industrial water use will increase fourfold by 2025. Meteorologists have estimated that the western regions of China will lack about 20 billion cubic metres of water from 2010 to 2030, and in 2050 the regions would still need 10 billion more cubic metres of water (ibid.).

## China's agricultural supply response

Much analysis simplistically ends with an assessment of China's profound agricultural challenges without delving into the manner in which Beijing is coordinating a national response to these shifts, through both domestic and foreign policy adjustments. Freeman et al. (2008) have suggested that China has five core short- and long-term policy options to ensure long-term food security: investing in the development of domestic agricultural production; reducing import costs; protecting domestic supplies by restricting exports; use of aid and cooperation mechanisms to boost production abroad; and adopting policies to boost outward investment in agriculture. For Africa, aid and outward investment (which are largely congruent on the continent) as well as China's trade-related options matter most, as this is where the continent is best positioned to play a role in increasing medium- and long-term food security in China.

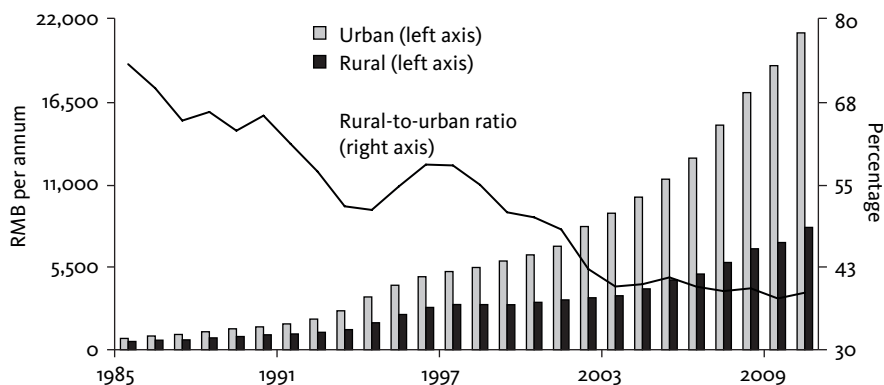
## Domestic agricultural production

China's propensity and ability to boost domestic agricultural production in light of increased demand is incontrovertible. Indeed, turning to domestic sources of supply will be Beijing's principal objective, particularly because of agriculture's broader role in maintaining social harmony in China.

- Given the large weight of food in the consumer basket (especially for 'surviving China'), the agricultural sector plays a critical role in keeping people fed.
- Rising food prices have a profound influence on the inflation trajectory, meaning that managing the supply and demand equilibrium in China is important. Recent pressures in this regard have been profound. According to the National Bureau of Statistics in November 2011, China's inflation had averaged 6 per cent so far during the year, with as much as 2 percentage points of this increase due to rising pork prices alone.
- The agricultural sector employs one-third of China's total labour force. In fact, nearly seven out of every ten rural workers are employed in agriculture.
- Related to this, one of the principal ambitions of Chinese policy makers in redistributing wealth and elevating socioeconomic prosperity in the country is to raise incomes in rural areas. The divergence in incomes between rural and urban households has widened by around 10 percentage points each decade since 1985, causing deep cleavages between different strata of society (see Figure 10.4). Farming (and even food prices) is a primary tool for rebalancing China's income distribution towards rural areas.

Given the sector's importance, it is no surprise that agriculture is placed at the centre of a host of structural and cyclical priorities in China, exemplified



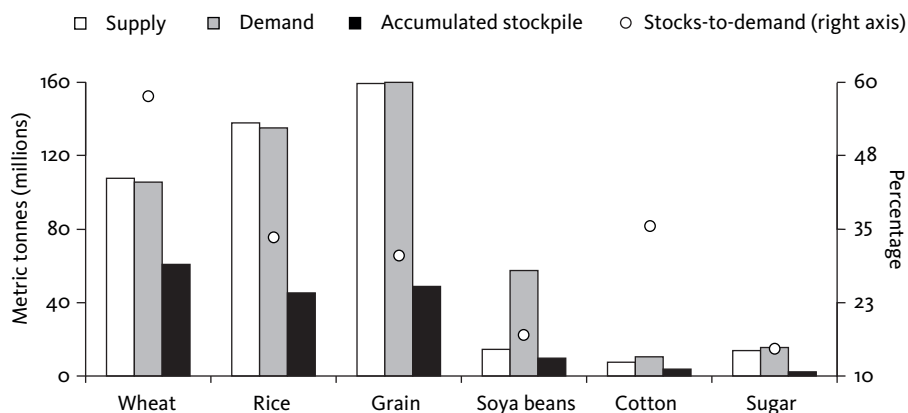


**10.4** Household income inequality in China

Source: CEIC; SBR

by its prominence in the Twelfth Five-Year Plan. A range of policies have been supportive of agriculture in China since 1978, when reforms to the agricultural sector spurred wider economic liberalisation.

While Organisation for Economic Co-operation and Development (OECD) nations have reduced agricultural subsidies by 6 per cent in 2010 (to US\$227 billion), resulting in a fall in farmers' incomes derived from subsidies from 22 per cent in 2009 to 18 per cent, China has increased its subsidies by 40 per cent (to US\$147 billion) (AFP 2011). More effectively, farmers are permitted to apply for 30-year leases. Extending property rights to farmers has proven to be four times more effective in generating income than subsidies, because, according to the Landesa survey of rural China, farmers with rights to the land are twice as likely to make capital investments (80 per cent do so within



**10.5** China's equilibrium in major markets, plus stockpiles

Source: World Trade Organization (WTO); SBR

12 months of receiving rights). In 2010 alone, these investments boosted rural incomes by nearly US\$500 billion (Landesa 2011).

Government prioritisation has worked so far: China is currently a net exporter of food, notably corn and rice. It has also accumulated enormous stockpiles of most soft commodities – importantly wheat, rice and grain (see Figure 10.5).

China has not had to pursue sizeable supplies of soft commodities offshore because its vast geographical reach means that different regions within the country have been able to develop various comparative advantages. For instance, Hainan (melons), Heilongjiang (green vegetables), Shaanxi (apples), Xinjiang Ugyur (cotton) and Shandong (vegetables) have emerged as pockets of specialisation. As a result, agriculture plays an important role in linking the different regions in China.

Investments in agriculture-related machinery have complemented specialisation, with total agricultural machinery power jumping from 525 million kilowatts in 2000 to 874 million kilowatts in 2010 (China Statistical Yearbook 2011). Together with these capital investments, China has seen the consolidation of farming plots (often under cooperatives), which have flourished (often facilitated by the fact that farmers can assume 30-year land leases). The confluence of specialisation and targeted investment, along with consolidation (unlocking efficiencies and economies of scale), has resulted in a flurry of innovation, led by globally competitive companies such as Sinograin (corn), Wilmar (soya beans) and others. China ranks first in worldwide farm output of barley, cotton, millet, oilseed, peanuts, potatoes, rice, sorghum, tea and wheat. China's agricultural yields are significantly superior to global norms, except for corn and soya bean, which are broadly on a par with global competition. In late September, an agricultural scientist from China, Yuan Longping, set a new world record of 13.9 tonnes of rice per hectare (up from 13.5 tonnes).

#### **Box 10.1. Agriculture in the Twelfth Five-Year Plan**

Promote *modernisation*, while deepening urbanisation, by improving the long-term supporting apparatus for industrial agriculture and upgrading transport, logistics and storage infrastructure.

Maintain *security* by preserving farmland of approximately 1.2 million square kilometres; protect arable land from erosion; enhance irrigation, water storage capacities and anti-drought/flood programmes; and ensure quality and safety of raw foods.

Grow *productive capacity* by accelerating farmland consolidation, extend benefits to individual farmers and increase production of grains to 540 million tonnes (Delegation of the European Union in China 2011).

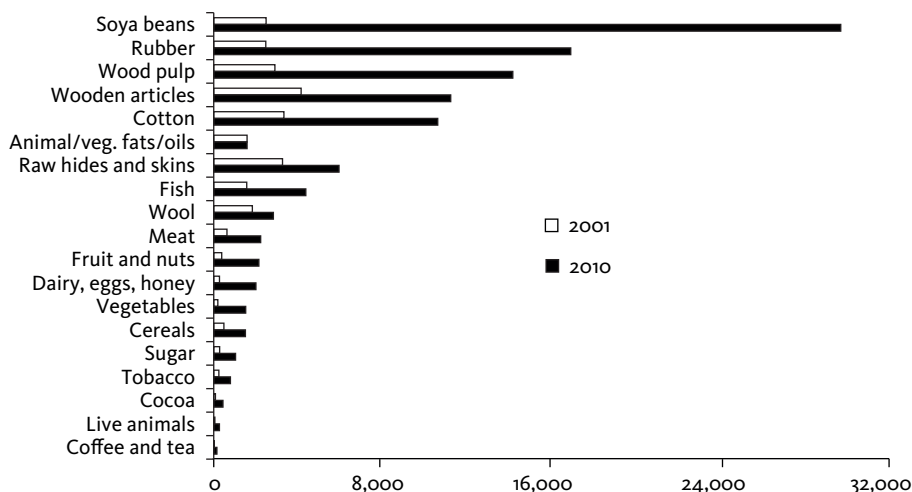
Each of these drivers has allowed China to remain broadly self-sufficient in agricultural production by doubling and then re-doubling agricultural output. According to a recent OECD/FAO report, China's agricultural output is predicted to see growth of around 26 per cent to 2019 (OECD-FAO 2010). Hence, for Beijing, much of the expected spike in food demand will be met with a substantial increase in domestic productivity by increasing yields per hectare and by modernising, commercialising and improving the country's agricultural output.

## **Trade**

While domestic investment will carry most of the burden brought about by increased demand for agricultural produce, externalisation will undoubtedly play an increasingly vital role in addressing China's overall food security. The principal channel through which China will seek external sources of nutrition will be trade. We know that in the past 30 years China has been the most successful nation in the world at attaching itself to global supply chains: China now accounts for more than 10 per cent of world trade (up from less than 2 per cent in 1980), and has become the world's largest exporter and second largest importer. However, as a result of its bid to internalise the means for maintaining domestic food security, agricultural produce accounts for just 5 per cent of China's imports (down from 16 per cent in 1980) (ITC 2011). Already, bolstered by its accession to the WTO in 2002, China has, over the course of the past decade, dramatically reduced tariffs on certain core agricultural commodities. For instance, in 2002 the maximum tariff on soya bean imports was reduced from 114 per cent to 3 per cent, leading to a significant increase in soya bean imports. It is necessary that the trend continues in order to meet the growing demand for soya beans from Chinese consumers.

Consideration of China's soya bean demand and supply dynamics provides a cogent indicator of the importance of increased trade. Today, China is the world's largest importer of soya beans, virtually all of which are used in crush to feed its animals. Indeed, where in 2001 China imported just US\$2.8 billion worth of soya beans, in 2010 this had increased almost tenfold to over US\$25 billion (amounting to 43 million metric tonnes, compared with 12.7 million metric tonnes imported by the entire Eurozone) (*ibid.*). Demand for soya beans in China is expected to increase to 60 million metric tonnes by 2020. Considering that, according to the State Administration of Grain, China would need to open up an additional 13.3 million hectares of farming land for soya bean production in order to become self-sufficient in the commodity, it is clear that import channels will be critical (Ping 2008).

Raised import demand has been material not only in soya beans. Over the last decade, imports of several important, largely 'land-intensive' agricultural commodities increased. In particular, between 1998 and 2007, according to UN



**10.6** The rise in China's food imports (US\$ million)

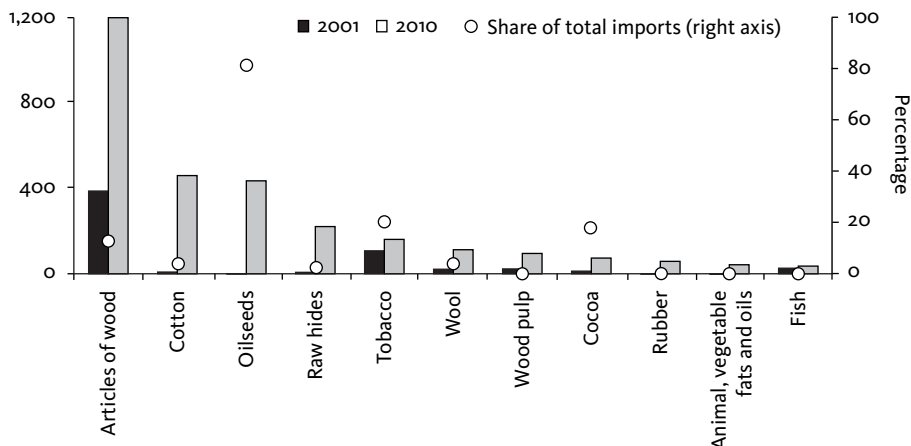
Source: UN Comtrade; SBR

data, the imports of products such as oilseeds, cereals, cassava, vegetables, wheat, palm oil and textile fibres have increased sixfold. Between 2001 and 2010, rubber imports increased from US\$2 billion to US\$16.9 billion. Several other products have shown remarkable growth: for instance, imports of dairy, eggs and honey expanded by over 800 per cent between 2001 and 2010, live animals by 690 per cent, vegetables by 630 per cent and coffee and tea by 620 per cent (see Figure 10.6).

Demand overhangs are inevitable. For instance, in 2008 China imported around 28 million tonnes of cotton against domestic production of 7 million tonnes. And, while rice yields in China are impressive at 4.79 metric tonnes per hectare and stock levels (45,188,000 metric tonnes) are as much as a third of annual demand, should the government require surplus stocks to manage price, new external sources will be important (USDA 2011).

A more affluent China will also increase demand for grain-fed meat, particularly pork, thereby increasing demand for feedstock. According to the China National Grain and Oils Information Centre, in 2010 over 100 million tonnes of corn were used by the livestock industry, a 27 per cent increase from 2009. Meanwhile, China's move towards biofuels will also be significant. As part of initiatives to reduce greenhouse gas emissions, China aims to replace 12 million tonnes of oil with 2 million tonnes of biodiesel and 10 million tonnes of bio-ethanol each year. Much of this will need to be supplied by imports. In 2010 alone, Chinese producers of bio-chemicals consumed 54 million tonnes of corn (much of which was imported from the US), up 12 per cent from 2009 (ITC 2011).

As a result of these shifts, the Food and Agricultural Policy Research



**10.7** Chinese agricultural imports from Africa (US\$ million; 2010)

Source: UN Comtrade; SBR

Institute (FAPRI) estimates that China's soya bean imports will increase from 33.7 million tonnes in 2007–08 to 52 million tonnes in 2017–18, and palm oil imports from 5.5 million tonnes to 10.8 million tonnes over the same period. Also according to FAPRI, China will change from being a net wheat exporter of 2.3 million tonnes in 2007–08 to a net importer of 1.4 million tonnes in 2017–18, while cotton imports will double from 3 million tonnes to 6.1 million tonnes. Importantly, FAPRI expects rice exports to buck the trend, increasing from 435,000 tonnes to 739,000 tonnes (FAPRI 2011). Of course, given China's size, any substantive increase in agricultural imports is likely to be meaningful globally.

China will increasingly need to lean on international markets for the provision of certain core foodstuffs, particularly those used to feed China's animals. The vast majority of imports will be produced close by, in Asia.

*Africa is a small player in China's agricultural trade prospectus* Currently, most Chinese agricultural imports originate in Asia and the Americas, relegating Africa to the sidelines. For instance, in 2010 the Americas accounted for virtually 99 per cent of all soya bean exports to China. Also in 2010, roughly three-quarters of China's rubber imports came from Asia (40 per cent from Thailand and Malaysia). Wood imports were more geographically dispersed. In Africa, Gabon and the Republic of Congo provided 3 per cent and 1.8 per cent of China's total wood imports in 2010 respectively, ranking in the top 15 sources of the commodity (ITC 2011).

Indeed, in 2009 total China–Africa trade in agricultural goods amounted to less than US\$4 billion, compared with overall trade of over US\$100 billion for the year. As indicated in Figure 10.7, only imports from Africa of wood,

tobacco, oilseed and cocoa accounted for more than 10 per cent of China's total imports of these specific commodities in 2010. Furthermore, only 4.5 per cent of China's cotton imports, 0.4 per cent of its rubber imports and 0.9 per cent of its fish imports came from Africa (*ibid.*).

Despite relatively modest trade volumes, growth in China's demand for African agricultural commodities has been pronounced. Imports of cotton, for instance, have expanded from just US\$8 million in 2001 to US\$462 million in 2010, and oilseed from US\$146,000 to US\$420 million. Meanwhile, wood imports also jumped by over 200 per cent, rubber imports increased from US\$12 million to US\$58 million, and raw hides from US\$6.7 million to US\$221 million between 2001 and 2010 (*ibid.*).

That said, there is a clear disconnect between the agricultural commodities that Africa principally exports and those that China is increasingly importing. When comparing the top ten Chinese agricultural imports with the top ten African agricultural exports, Chaponniere et al. (2010a) show how only two commodities, cotton and rubber, appear on both lists, and even trade in these products remains relatively modest.

Meanwhile, reflecting the manner in which Africa's agricultural sector has consistently underperformed, Chinese exports of agricultural commodities to the continent have increased at a faster rate than African agricultural exports to China over the past five years. Indeed, in 2008, while total Chinese agricultural imports from Africa reached US\$2 billion, Chinese exports of agricultural products (principally rice, tea and vegetables) amounted to a little over US\$1.5 billion. Quite clearly, while China is actively adopting increased agricultural trade as a means of supporting domestic food consumption, Africa, for now, does not feature prominently in Beijing's prospectus.

### **Aid and outward investment**

While the proposition of Freeman et al. (2008) conceptually separates the use of aid and outward investment as agricultural policy tools available to China, in reality this separation, particularly in the African context, is unfeasible. Indeed, a marked feature of China's renewed engagement with core African markets has been the manner in which state-led developmental assistance has acted as a beachhead for wider corporate activity. In agriculture, while emphasis is placed more heavily on developmental objectives (as opposed to mining, for instance), signs of commercialism and strategic intent are increasingly visible.

Traditionally, Chinese attempts to aid African agriculture have focused on the transfer of technologies and training, and the establishment, and often operation, of demonstration farms. China has actively used these forms of assistance in forging or supporting strategic partnerships in Africa since at least the 1960s. In all, during the 1960s and 1970s, China assisted in building over 80 farms in Africa, covering a territory of roughly 45,000 hectares. Some

of these farms, such as the Mbarali farm in Tanzania, included long-term technical assistance and, at one stage, were responsible for roughly one-quarter of total domestic rice production, providing important support for national food security (Spring 2009). Other notable operations originating in this period included the Ubungo Farm Implements plant, also in Tanzania, which produced 85 per cent of the country's handheld farm tools, the Fano farm in Somalia and the Chipembe farm in Uganda.

In the 1980s, while the focus remained on the above tenets of cooperation, a discernible shift emerged towards ensuring that these demonstration farms became profitable. This adjustment was influenced in large part by wider 'go global' initiatives involving virtually all large Chinese state-owned and private entities. Ultimately, state support became a crucial tool in emboldening China's commercial advance. Meanwhile, agriculture maintained its elevated role as a means through which Beijing sought to strengthen international partnerships in order, at least partly, to support domestic food security objectives. Thus, according to Chaponniere et al. (2010a), by the end of the 1980s, nearly one-quarter of China's total aid programme in Africa concentrated on agriculture, touching more than 40 African countries.

More recently, material support has been lent to Chinese agricultural firms in Africa through the Forum on China–Africa Cooperation (FOCAC), principally under FOCAC's China–Africa Development Fund (CADF), which is administered by China Development Bank. CADF has already supported the establishment of ten demonstration farms in Africa. Moreover, in the Outward Investment Sector Direction Policy of 2006, explicit provision was made for the support of the outward expansion of China's agriculture, forestry and fisheries sectors, specifically those encouraging the cultivation of natural rubber, oil-bearing crops, cotton and vegetables, as well as felling, transportation and planting of timber, animal husbandry and breeding, and fisheries. However, while no doubt important, China's support for the outward expansion of the agricultural sector is comparatively minimal. According to Freeman et al. (2008), China's outward investment in agriculture, forestry, animal husbandry and fisheries combined was only US\$190 million in 2006, 0.9 per cent of total outward investment for the year. This contrasts with the US\$8.5 billion invested in resource extraction.

As of 2009, roughly 200 agricultural projects had been carried out by China in Africa, with a further 23 projects in the fisheries industry. The Chinese ministry of commerce has further claimed that over 1,100 Chinese agricultural experts are currently stationed in Africa, maintaining at least 11 agricultural research stations and over 60 agricultural investment projects throughout the continent (Rubinstein 2009). The majority of these projects have been, and continue to be, carried out by a range of large and medium-sized Chinese state-owned farming groups. At the state level, the China State Farm and

Agribusiness Corporation (CSFAC) has been most active. Having established its first farm in Africa in 1994, CSFAC now operates seven farming projects across the continent, covering an area of around 8,600 hectares. Complementing state-level firms are regional or provincial organisations, such as the Hubei SFAC (which in 2005 established a 1,000-hectare farm in Mozambique), Jiangsu SFAC and Shaanxi SFAC (which has established a 5,000-hectare farm with an investment of US\$62.5 million in Cameroon, growing mainly rice) (Bräutigam and Xiaoyang 2009).

Joint operations between state and provincial organisations are commonplace. For instance, CSFAC and the Jiangsu SFAC have developed collaboratively the China–Zambia Friendship Farm, which covers around 700 hectares of land in Zambia, growing barley, maize and soya beans. Another prominent state-level institution, the China National Agricultural Development Group Corporation, is believed to operate seven farms in Africa. In all, Chinese reports claim that there are 15 Chinese farms in Zambia, covering an area of 10,000 hectares and operated by six different Chinese state-owned enterprises (SOEs). Subsidiaries of these SFACs are also active on the continent. A general characteristic of these farms is that they are run on a profit basis, with production based predominantly, at times exclusively, on local or regional demand dynamics. A larger 3,500-hectare farm run by CSFAC in Zambia, for instance, provides around 10 per cent of Lusaka's eggs (Marks 2008; Ping 2008; Zhu 2010).

Naturally, on the back of state-sponsored activities, smaller Chinese private firms and individuals active in the broader agricultural or agribusiness space have secured new opportunities (see Table 10.1). Many Chinese agribusinesses operating in Africa are also subsidiaries of larger private or, more often, state provincial agricultural firms.

Recent Chinese activity in Latin American agriculture has been substantially more pronounced than in Africa. According to Deloitte research, between May 2010 and May 2011, China invested a total of US\$15.6 billion in Latin America, a threefold increase on the previous year. China in particular has strategically invested in soya bean production. In April 2011, China and Brazil sealed a US\$7 billion agreement to produce 6 million tonnes of soya beans per year. In the same month, Chongqing Grains signed a further US\$2.5 billion agreement to produce soya beans in the Brazilian state of Bahia (Barrionuevo 2011).

Trade ties have, of course, been of principal importance (consider that in Goiás state in Brazil, almost 70 per cent of the soya grown in 2010 was exported to China), but it is clear that China is increasingly looking to control sources of external production. However, initial forays into Latin America in this regard inspired a policy backlash. According to Barrionuevo (*ibid.*), in the deals mentioned above, Chinese officials were in favour of purchasing the land but were guided towards production agreements in line with stricter regulations governing foreign land ownership recently introduced by Brazil and



TABLE 10.1 Selected Chinese agricultural and agribusiness SOEs operating in Africa (2010)

Company	Country	Core operations
Da Ping Fishery Group	Angola	Fishing, aquatic product processing and sale of fish meal
Sichuan Sanhetian Bio-Tech	Ghana	Planting, processing and trade of medicinal plants
Shandong Xinwei Grain and Oil	Mozambique	Planting, processing and sale of sesame, cashew and peanuts
CGC Overseas Construction	Nigeria	Agricultural trade, grain cultivation and processing, and livestock
Huaqiao Phoenix Group	South Africa	Forestry, poultry and livestock
Hainan Qilin Tech	Tanzania	Sisal research and development, cultivation, processing and sale
China–Africa Agriculture Investment Corporation Limited	Zambia	Production and sale of agricultural and livestock products
Qindao Textile Union	Zambia	Planting, processing and trade of cotton
An Hui China State Farms Group	Zimbabwe	Agricultural trade and investment (including livestock and aquatic products)

Source: MOFCOM 2010

Argentina, largely in response to rising Chinese interest. These new restrictions have reportedly put on hold upwards of US\$15 billion worth of farming projects, including a wide range of foreign investors, in Brazil alone (ibid.).

*Accusations of 'land grabs' have been controversial* In May 2008, amid concerns stoked by the global food price hikes, the Chinese Ministry of Agriculture (MoA) is reported to have proposed a new policy on outward investment in agriculture. According to the document, domestic Chinese companies would be encouraged to purchase or lease land abroad, with a focus on soya bean production, so as to support domestic food security objectives. Areas prioritised for expansion included Africa, Central Asia, Russia, South-East Asia and South America, with emphasis placed on those countries enjoying political stability and having strong relations with China. The policy proposal, having leaked into public discourse, ignited a flurry of accusations focusing on the manner in which China was planning to engage in large-scale 'land grabs' in vulnerable African states.

In response to the allegations, MoA denied that any new policy stance had been adopted, despite claims that the document had apparently already been presented to the State Council for ratification. Chinese officials have since deliberately rebutted these claims, asserting that Beijing has no intention of acquiring land in Africa to provide for increased demand for agricultural commodities. This response is likely to have been inspired in part by the profoundly negative reactions to a wide range of land-leasing deals signed in sub-Saharan Africa over the course of the past decade – especially the failed attempt by South Korean firm Daewoo Logistics to secure large tracts of land in Madagascar for agricultural purposes (Spencer 2008), in part triggering a coup d'état in the country. China is also sensitive about publicly conceding weaknesses in its own ability to provide adequate security and sustenance for its population. In December 2008, the National Development and Reform Commission announced a 20-year food security strategy in which foreign land acquisitions were not included as a pivotal feature, with the exception of soya bean production in Brazil (Cotula et al. 2009).

A range of recent studies, particularly by the International Institute for Environment and Development and the Oakland Institute, back up China's assertions. Indeed, while it is estimated that between 50 and 60 million hectares of land have been acquired or leased for agricultural purposes in sub-Saharan Africa over the past decade, China's contribution to this thrust has been minimal (ibid.). In terms of government-to-government land-leasing deals, activity from the water-scarce Gulf states, such as Saudi Arabia and Qatar, has been pronounced, while private firms, such as India's Karuturi Global, which operates agricultural and horticultural assets in Kenya and Ethiopia, continue to play important roles. Inspired primarily by global food

prices, speculative interest in African farmland has also increased markedly (Freemantle 2011).

## **Conclusion**

On both the demand and supply side, China's agricultural sector is clearly under strain. For now, Beijing can and will look to its own domestic sources to provide for the bulk of new demand, implementing new technologies to stave off the effects of a reduction in cropland. Yet it is increasingly evident that China cannot ensure low-cost food for its large and demanding population without ramping up external sources of nutrition. Such initiatives are not unique to China: Japan, for instance, has access to three times more cropland abroad than domestically. And movements are, for the most part, likely to be gradual, reflecting persistent debate within China as to the relative merits and risks associated with the externalisation of food production. Either way, given China's scale and its pace of change, any shift in this regard is likely to have a meaningful impact on global agricultural markets.

In Africa, two core areas hold an allure for China. First, given the manner in which the continent's agricultural sector has persistently underperformed, the provision of developmental and technical assistance provides Beijing with an important avenue for fostering and building deeper bilateral ties. And, second, sub-Saharan Africa's immense and largely untapped agricultural potential is increasingly viewed by China as a cog in an unfolding and inclusive food security strategy. For now, China's strategy is overtly developmental and, although commercialism inspires many of the cooperative farming projects, profits are generated almost entirely in local and regional markets.

That said, and as indicated by China's expansive agricultural investments in Mozambique, it is clear that Beijing is seeking to build deeper relationships in agriculture with land-rich and politically stable countries 'friendly' to China. Investments, backed by state-directed assistance, in these countries will increasingly look to produce the types of crops, such as soya beans and cotton, for which demand in China is high. Collaboration will also be pronounced in coffee, tea, rubber, wine, sisal and tobacco production, emphasising specific strengths already evident in Africa in the production of some of these commodities. Most of these initiatives will look to bolster China's agricultural trade ties with Africa, although some, as has been evident in nascent moves in Latin America, will position Chinese firms to control the external source of production.

For Africa, managing Chinese interest in its agricultural sector will be critical. The continent suffers from an acute lack of skills and capital for unlocking its inherent potential. Yet, as has been evident in many of the land-leasing deals signed in sub-Saharan Africa over the past decade, too often investments are poorly structured, undervaluing the agricultural assets at stake. The role

of China as a developmental partner should not be understated. Increasingly, African countries must attempt to align Chinese aid packages with continental or at least regional agricultural programmes such as the Comprehensive Africa Agriculture Development Programme and the Alliance for a Green Revolution in Africa, so as to maximise socioeconomic gains.

# **II | China's agricultural and rural development: lessons for African countries**

Xiuli Xu and Xiaoyun Li

## **Introduction**

This chapter highlights the key elements of China's agricultural and rural development strategy, which is credited with the unprecedented scale of poverty reduction and overall economic growth over the past decades, and explores how Chinese experience could inform Africa's strategy to transform its lagging agricultural sector and reduce poverty. It starts by reviewing the progress of agricultural and rural development since the reforms, followed by an analysis of China's agriculture-led development strategies and policies that have underpinned its impressive performance. The chapter concludes with a reflection on the lessons China's experiences in agricultural development and poverty reduction may have for African countries.

## **Agriculture in China's post-1978 economic transformation**

China's success in economic development and poverty alleviation since the economic reforms and 'opening up' policy initiated by Deng Xiaoping at the end of the 1970s has been startling. Robust economic growth, averaging about 10 per cent per year, has been consistently maintained over the past three decades. This phenomenal growth has enabled China to lift millions of people out of poverty and hunger, and to position itself as the second biggest economy in the world (World Bank 2001; Hu et al. 2006; Huang et al. 2007). The share of the population living below US\$1.25 a day decreased impressively from 84 per cent in 1981 to 16 per cent in 2005 (Chen and Ravallion 2008).

The achievements in agricultural growth, food security and rural development are considered to be one of the contributing factors in the aforementioned economic miracle in China (McMillan et al. 1989; Fan et al. 1999; 2010; World Bank 2007: 6; Huang et al. 2008; China-DAC Study Group 2011b: 32). Indeed, China's agricultural growth is estimated to have contributed four times more to poverty reduction than both manufacturing and services (Ravallion and Chen 2007; Ravallion 2009). This mirrors what Johnston and Mellor (1961) argue about the intrinsic, albeit intricate, link between agriculture and economic development. They note that agriculture stimulated growth in non-agricultural

sectors, contributed to the reduction of poverty and hunger and supported overall economic well-being.

Prior to Deng Xiaoping's decision to transform the Chinese economy, Chinese agriculture did undergo some development, but on a less significant scale than in the post-reform period. The aim was to maintain minimum food security using a mono-agricultural strategy concentrated on food crops. This agricultural development was interrupted by the natural disasters and political struggles of the 1950s to 1970s. The Land Reform Act of the People's Republic of China was passed in 1950 to distribute arable land in private ownership to all peasants. Land reform was also accompanied by policies to establish agricultural universities, develop national and local research institutions and develop agro-input industries. These initiatives led to a dramatic increase in agricultural production, particularly in food crops (Li et al. 2012). The output of food crops increased from 113.18 million tons to 197.65 million tons during 1949–58 and average output of food crops per capita increased from 208 kilograms to 299 kilograms in the same period (State Statistical Bureau 2009: 161, 637).

However, radical shifts and reversals in policies, such as the Great Leap Forward campaign, which forcibly organised farmers into communes and outlawed private production of agricultural crops, had a disruptive effect. During this period, capital accumulated from agriculture was mobilised for heavy industry, while critical means of production, such as land and labour, were under state control and private initiatives were not permitted. This misguided policy contributed to the great Chinese famine of 1958–62, although the problem was compounded by drought and poor weather. The ensuing Cultural Revolution of 1966–76 further deflected national attention from addressing the productivity decline in agriculture and the overall stagnation of the Chinese economy. Investment in research and development, new technology and rural infrastructure was neglected and declined between 1957 and 1978 relative to 1952–57 (Maddison 2008: 77–8). These misadventures, which saw a huge diversion of scarce national resources and energy, were among the critical factors influencing Deng Xiaoping to put China on a different path after the death of Mao Zedong in 1976. With the gradual liberalisation of economic policy after 1978, the production potential of agriculture was unleashed.

The poor state of African agriculture and the prevalence of food insecurity in many parts of the continent are not exceptional. Today's so-called emerging countries, such as China, India and Brazil, experienced long periods of chronic hunger and food insecurity as a result of the underdevelopment of their agricultural sectors. Over the past 30 years, however, these countries have introduced radical economic and political reforms that have enabled them not only to transform the agricultural sector, but also to build a dynamic industrial sector and to position themselves as important players in the global economy.

Based on the experiences of these successful emerging countries, the

situation in Africa is not hopeless. With the right policies and strong political leadership, African countries could also transform their agricultural sectors and leapfrog into industrialisation. The African continent has lagged behind other developing regions, with a prolonged stagnation beginning in the 1970s, despite recent notable economic progress. Poverty and hunger still plague the vast continent, particularly in the rural areas (World Bank 2007: 21). The incidence of poverty in sub-Saharan Africa remained virtually constant at 50 per cent during 1981–2005, with the number of poor doubling (Chen and Ravallion 2008). Africa's impressive economic growth over the past ten years has not been accompanied by job creation and the reduction of inequalities, indicating that structural transformation has yet to occur (UNECA and AUC 2012: 8–15). Much recent growth is accounted for by increased receipts from commodities: growth has not been broad-based or inclusive.

Nevertheless, consensus has recently been reached on the importance of agriculture and rural development as powerful engines of broad-based growth and poverty reduction in sub-Saharan Africa (Christiaensen and Demery 2007; Ravallion 2009; Fan et al. 2010; China–DAC Study Group 2011b: 34–61). The emergence of continental and regional policy-making machinery alongside national policies provides the institutional architecture for various initiatives to enhance agricultural production and productivity in Africa (China–DAC Study Group 2011a: 36–41). The renewed focus on agricultural development in Africa is also seen as a silver lining following the multiple global crises of food, climate change and finance (Juma 2011: 11–22; Fan et al. 2010; China–DAC Study Group 2011b: 34–61).

The pathway to China's agricultural growth and poverty reduction can serve as a reference point for ongoing efforts to catalyse agricultural transformation in sub-Saharan African countries (Fan et al. 2010; China–DAC Study Group 2011b: 34–61; Li et al. 2012). This type of China–Africa knowledge exchange, particularly in agriculture, is timely in light of the recent strengthening of China's and Africa's economic cooperation, which offers new development opportunities for African states and local farmers (Kragelund 2008; Bräutigam and Xiaoyang 2009; Bräutigam 2010; Fan et al. 2010). There are also, however, challenges, labelled in neocolonialist terms as 'land grabs', resource exploitation, influx of Chinese labourers, environmental pollution, hindering democracy and support for tyranny (Zafar 2007; Fisher 2011). For many observers and policy makers, 'it is perhaps in agriculture where China may have a significant impact on the continent's future' (Chaponniere et al. 2010a).

### **Agricultural and rural development in China since the reform era**

The way China managed to bring about the structural transformation of agriculture and the economy in general will be discussed in detail later in this chapter. In a nutshell, the policies pursued by the Chinese Communist

Party since 1978 included: i) institutional innovation; ii) technological change; iii) market development and trade liberalisation in goods; and iv) rapid expansion of the development of rural infrastructure. All in all, the key elements underpinning the institutional and policy shifts reflect the strong commitment of the leading party to agricultural development and sound pro-agriculture institutional architecture. Together with this, there was a commitment to gradual and learning-based policy making and implementation, which allowed agriculture-based reform to expand into broader social and economic transformation, and thus create synergies between the state, the market and farmers.

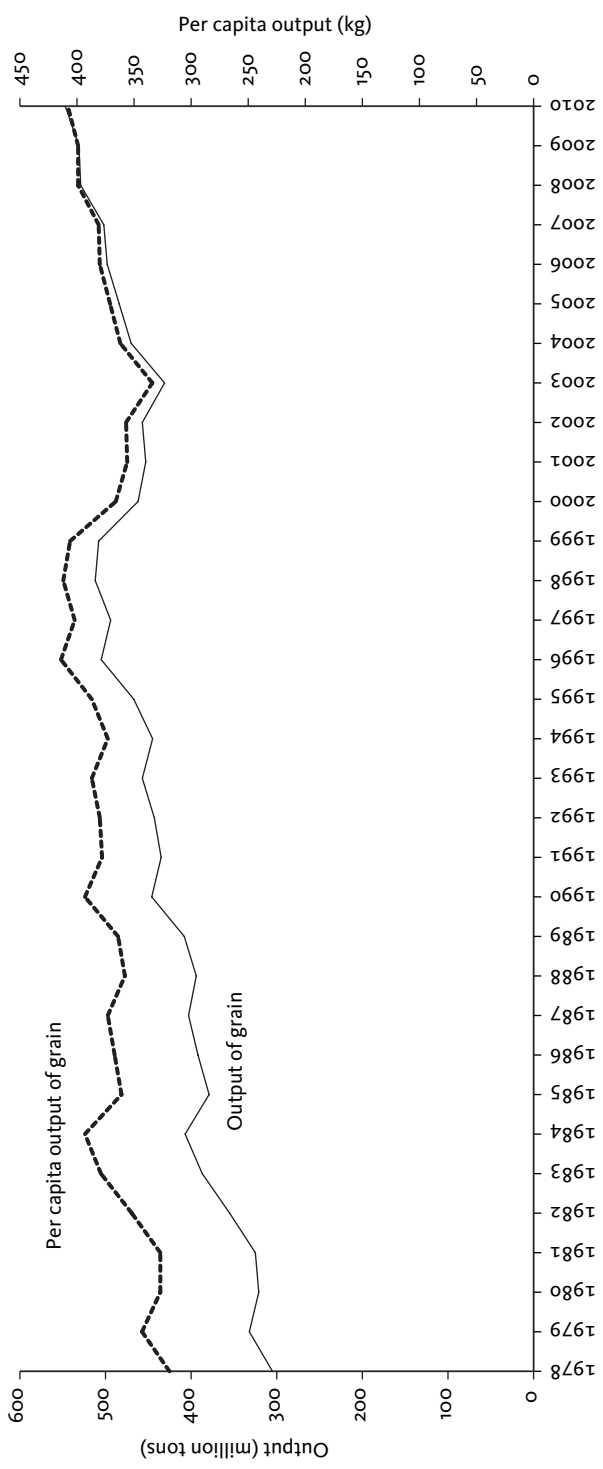
This section focuses on three key elements of productivity growth and transformation in Chinese agriculture: i) grain production and food security; ii) diversification of agriculture beyond grain; and iii) development of a non-farm economy and urbanised society that were the foundations of overall economic growth and poverty reduction in China.

*Grain production and food security* After the reforms, grain production boomed markedly, particularly in the early stages. Now China grows sufficient food to meet the needs of a fifth of the world's population on less than a tenth of the world's arable land and with a quarter of its global water resources. Grain output per capita was 288 kilograms in 1952, 319 kilograms in 1978 and over 400 kilograms in 2010 (State Statistical Bureau 2009: 17; SSB 2011) (see Figure 11.1).<sup>1</sup> According to Food and Agriculture Organization (FAO) estimates, the number of undernourished people decreased from 304 million in 1979–81 to 123 million in 2003–05, and the percentage of undernourished people decreased from 30 per cent to 9 per cent of the population in this period.

Fluctuations can be clearly observed in the growth rates of grain production throughout the post-reform period. Grain production increased by 4.7 per cent per year during 1978–84, in contrast to 2.8 per cent during 1970–78 (Huang and Rozelle 2009). This prominent growth soon slowed to 1.7 per cent and then even lower to 0.03 per cent during 1985–95 and 1996–2000 respectively (Huang et al. 2008). After the peak harvest in 1996 of 500 million tonnes (State Statistical Bureau 2009: 161), a sharp downturn gave rise to a substantial supply deficit. Between 2000 and 2003, China suffered a cumulative shortfall of some 245 million tons of grain (Ash 2010), but falling grain trends have been reversed somewhat since 2004. More recently, an inspiring peak yield of 4,950 kilograms per hectare was harvested in 2008 (State Statistical Bureau 2009: 161).

Comprehensive drivers such as institutional change, technological development, price and market liberalisation, new irrigation systems and a flourishing agro-input industry contributed to the growth of grain production in China in the post-reform period (Lin 1998; Li et al. 2012). The productivity of both land and labour has been enhanced since the reforms (Ash 2010; Maddison 2008: 75–7), and, given the increasing land constraints faced by China, the rise





**11.1** Growth in grain production in China (1978–2010)  
Source: State Statistical Bureau 2009: 17; 2011

in yields, which has outstripped the rate of expansion of sown areas since 1978, provides the firmest foundation for continued output growth. With the intensification of land use and labour, the production of small-scale farmers has been characterised by a rising multiple cropping index, up from 117.2 per cent in 1996 to 126.1 per cent in 2007 (Ash 2010).

The increasing grain surplus laid a solid basis for broad economic growth and poverty reduction by meeting the basic food needs of China's population, allowing for further active adoption of higher value-added farming activities and the transformation of the off-farm economy. Moreover, grain production is changing: the increase in the area sown to maize, China's main feed grain, and the decline in that sown to rice and wheat correlate to the rapid expansion of the nation's livestock production (Huang and Rozelle 2009). Additionally, with moderately enhanced grain production, food prices decreased, as did the share of food in total consumption expenditures of both rural and urban populations (Huang et al. 2008). This, in turn, reduced the cost of labour for manufacturing and services.

In stark contrast, sub-Saharan African countries remain seriously food insecure, with food self-sufficiency of less than 50 per cent in most African countries. According to the FAO, the highest prevalence of undernourishment is found in sub-Saharan Africa, with 30 per cent of the total population undernourished in 2005–07 (FAO 2011b: 65–6).<sup>2</sup> Africa as a whole is currently the only continent with net food imports, even though it is made up of a majority of 'agricultural-based countries' (World Bank 2007: 1) that are dependent on agriculture as a major development component; 62.5 per cent of its population are rural dwellers, and 58.4 per cent of employment is in agriculture (FAO 2011b: 90, 111).

The link in sub-Saharan Africa between severe hunger and weak grain production, dominated by coarse grains, has been self-perpetuating, particularly since the 1970s. Over the last 30 years, grain production in sub-Saharan Africa has plummeted, with productivity less than half the world's average (Li et al. 2010: 1–20). Grain production per capita in 1970 was 176 kilograms, dropping to 146 kilograms in 1979 and to less than 125 kilograms in 1983. It remains lower than in the 1970s: for example, it reached 141 kilograms in 2005, despite some recovery in the new century (*ibid.*). This is only half of China's lowest level, in 1952.

The disappointing performance of grain production in sub-Saharan Africa, along with stagnant agricultural growth, has resulted mainly from low productivity and unfavourable policy conditions for agricultural production. Agriculture has not been prioritised in national development strategies. Little investment was made by African governments in research, technological modernisation and rural infrastructure to stimulate agricultural production. Instead, they penalised the sector through benign and sometimes deliberate neglect. Only 4 per cent of Africa's crop area is irrigated, compared with nearly 50 per cent in China

(Li et al. 2010: 121; State Statistical Bureau 2010: 55). The barely passable roads translate into formidable market access costs for remote farmers. Low and mismatched investment in modern systems, including agricultural research, extension services and education, along with urban-biased and cash crop-biased agricultural policies, have aggravated the situation further.

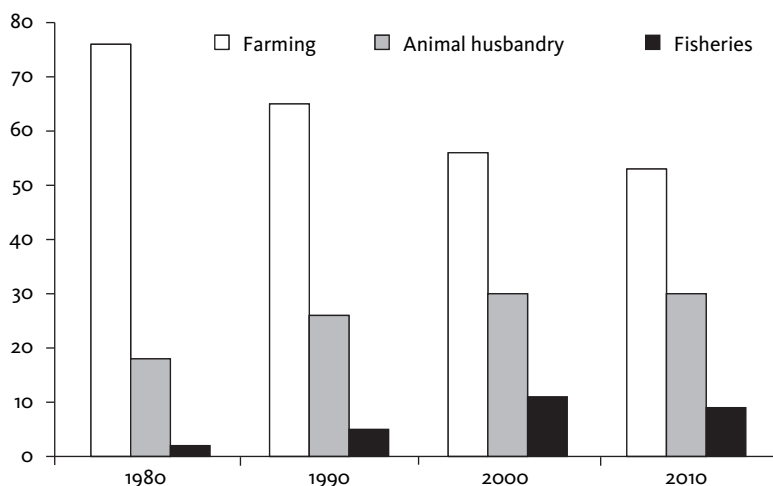
*Diversification of agriculture beyond grain* China's agricultural production has changed significantly over the past 30 years, shifting from low-value and land-intensive cereal cultivation to higher-value and labour-intensive activities, such as fishing, livestock husbandry, poultry rearing and fruit and vegetable farming. The dramatic diversification of the agricultural economy has taken place alongside the growth in grain output and yield, thanks to rapid economic growth, urbanisation and market development (Huang and Bouis 1996; Huang and Rozelle 1998). This trend has marked the success of China's agricultural transition towards a pattern of farm production more closely in accord with the principle of comparative advantage (Ash 2010), which confers more benefits and makes a greater contribution to poverty reduction and inclusive development.

With regard to crop cultivation, cash crops such as vegetables, edible oil, sugar and tobacco have expanded rapidly after the reform, displacing the prior dominance of grain mono-production. In the 1970s, vegetables accounted for 2 per cent of total crop area, a share that had increased sixfold by 2007 (Huang and Rozelle 2009). Fruit experienced similar rates of expansion, and the area devoted to edible oil doubled (ibid.).

The growth of other agricultural sectors has been even greater and steadier than that of crop cultivation in the post-reform period (see Table 11.1). The growth rate of animal husbandry reached 9.6 per cent between 1978 and 1984 and 10 per cent from 1984 to 1995, surpassing the growth of crop cultivation in the same two periods (at 7.3 per cent and 3.8 per cent respectively) (Ash 2010). Fisheries also expanded strongly, particularly in the years 1984–95; at

TABLE 11.1 Share of gross output by sector in China (percentage and value; 1980–2010)<sup>3</sup>

Year	Indices of gross output (preceding year = 100)			Gross output value (100 million yuan)			
	Farming	Animal husbandry	Fisheries	Total	Farming	Animal husbandry	Fisheries
1980	76	18	2	1,922.6	1,454.1	354.2	32.9
1990	65	26	5	7,662.1	4,954.3	1,967.0	410.6
2000	56	30	11	24,915.8	13,873.6	7,393.1	2,712.6
2010	53	30	9	69,319.8	36,933.0	20,870.0	6,440.0



**11.2** Percentage share of gross output value by sector in China (1980–2010)

Source: State Statistical Bureau 2011

one point, the growth rate reached 15.1 per cent, although it dropped to 7.2 per cent between 1995 and 2007 (ibid.). Today, China produces 70 per cent of the world's farmed fish and other aquaculture products (ibid.).

The rapid growth of non-crop sectors has stimulated profound changes in the structure of agricultural production since 1978. Crop farming's share of the gross value of agricultural output has fallen dramatically, from 76 per cent in 1980 to 53 per cent in 2010 (State Statistical Bureau 2011), and the downward trend continues. Meanwhile, the share of both animal husbandry and fishing has increased significantly. Animal husbandry accounted for only 18 per cent of gross output value in 1980, but expanded to 30 per cent in 2010. The share of aquatic products rose even faster and more strongly, from 2 per cent in 1980 to the peak level of 11 per cent in 2000 (ibid.) (see Figure 11.2).

The diversification of agricultural production in sub-Saharan African countries has different dynamics from the situation in China. First, based on the legacy of colonialism, most African countries have cash crop-oriented agriculture, with the most favourable land, water and other inputs being dedicated to coffee, cocoa, tea, cotton, tobacco, groundnuts and cashew nuts, whereas grain production is relatively neglected. This structure, persisting until today, is vulnerable to the international market; it fails to ensure food security because of over-reliance on grain imports, nor does it enhance industrialisation, especially when the price of cash crops plummets as a result of recent increases in competition from other regions.

Second, in contrast to China's consistent upgrading of its position in the value chain, the proportion of cereals as against high-value agricultural products such as meat, vegetables and fruit in sub-Saharan African countries

has been quite stable since the 1970s. According to the Statistics Division of the FAO (FAOSTAT), in 1979–81 cereal output accounted for 50 per cent of total agricultural output, with meat at 5 per cent and vegetables and fruit at 45 per cent. These shares remain almost unchanged in the twenty-first century, although 1–2 percentage point variations are witnessed in some years.

The low agricultural yield, whether of cereal or of high-value products, contrasts markedly with China. It is inadequate land productivity in particular that best expresses the divergent performance of China and Africa in agricultural development (Li et al. 2010: 1–20). Insufficient growth and a focus on export crops have weakened agriculture's contribution to poverty alleviation in Africa.

*Development of a non-farm economy and urbanised society beyond agriculture* China today is a much less rural society than it was in 1978. In that year, fully 82 per cent of the population was registered as 'rural'. A little over 30 years later, in 2009, this share had fallen to just 53.4 per cent (State Statistical Bureau 2010: 29). Evidently, the number officially tied to the rural sector in China is still staggeringly large: at the end of 2008, China's rural population totalled 721.35 million, equivalent to 11 per cent of the entire world population (Population Reference Bureau 2008). However, many rural citizens have migrated to cities to make a living (Zhang et al. 2004). The urbanisation rate in China has recently risen to almost 50 per cent, as opposed to 18 per cent in 1978, and the accelerated urbanisation trend is likely to be maintained for the foreseeable future.

Agriculture can no longer be regarded as a driver of economic growth, a role now played by the labour-intensive manufacturing and export sectors. Thanks to increased regional and global integration, productivity growth was mainly driven by the economies of scale and specialisation in coastal and urban centres (China–DAC Study Group 2011b: 34–61). Ironically, agriculture has been declining gradually in economic importance over the past three decades due to its successful role in the transformation of the overall economy. The average annual growth rate of agricultural output throughout the post-reform period reached as much as 5 per cent, yet was surpassed by growth rates in the industrial and service sectors, as well as by overall economic growth, which have been one to two times higher, particularly since 1985 (Huang and Rozelle 2009). Thus, the share of agriculture in overall gross domestic product (GDP) decreased sharply from 30 per cent in 1980 to 10 per cent in 2009 (World Bank 2011c: 398).

The diminishing role of agriculture has been accompanied by a rapid increase in the rural non-farm economy and the manufacturing sector. Meanwhile, the rural economy has become much more diversified, with significantly increased output in township and village enterprises (TVEs). Agricultural GDP grew on average by 12.1 per cent annually between 1978 and 2007, while the gross output value (GVO) of TVEs rose by 24 per cent per year in the same period. In 2010, TVEs accounted for 61 per cent of the combined GVO of

agriculture and TVEs, compared with only 13 per cent in 1978 (State Statistical Bureau 2009: 49–51; 2011) (see Figure 11.3). TVEs are regarded as one of the major successes of the country's reforming socialist economy (Jefferson 1993; Unger and Chan 1999).

Employment changes in different sectors indicate the same trend towards agricultural contraction and non-farm expansion. Employment in the agricultural sector amounted to 81 per cent of total employment in 1970, while the share dropped to less than 50 per cent after 2000 owing to the rapid growth of the industrial and service sectors. Meanwhile, employment in TVEs increased from 28 million in 1978 to 159 million in 2010 (State Statistical Bureau 2011) (see Figure 11.3). One hundred and fifty million migrant labourers were engaged in non-farm activities by 1995, with the number increasing to over 200 million by 2011. Accordingly, at the household level, farmers' incomes have become more dependent on non-farm sources: the proportion of income from non-farm activities has risen from 18 per cent in 1985 to around 41 per cent in 2010 (*ibid.*).

China's experience is in sharp contrast to that of African countries, where the link between agricultural development, overall economic growth and poverty reduction has been regrettably absent. The contribution of agriculture to industrialisation has been quite limited, except for that small part of the agricultural sector producing cash crops to generate the foreign exchange needed by governments. The share of GDP from value-added agriculture has remained quite stable for a long time, at about 25 per cent since 1980, although it increased slightly to 30 per cent in 2009 (World Bank 2011c: 399).

At the micro level, non-farm activities have deeply penetrated farmers' livelihood strategies, a trend that can be traced back to colonial times. Seasonal or long-term migrant work or self-employed vending activities assisted farmers to alleviate high material uncertainty in export crop production. Second, while China experienced 'urbanisation with development' by simultaneously pursuing successful agrarian transformation along with industrialisation, rapid urbanisation in Africa has not been accompanied by a similar outcome. The African experience is one of 'urbanisation without development', a rural exodus from the drudgery of subsistence farming (Bryceson 2002) and from a poor system of property relations that works against the interest of small-scale farmers (Havnevik et al. 2007).

To sum up, in stark contrast to the disappointing performance of agriculture in sub-Saharan African countries, China's efforts to shift towards a more urbanised society and a higher value-added economy are bearing fruit now. However, China strongly holds to the most fundamental function of agriculture, namely to generate an increasing surplus of food despite land constraints. The modernisation process in China, triggered by agricultural development, has gradually moved forward beyond agriculture. Even so, in 2011 agriculture still accounted for over 40 per cent of the workforce, and it still plays an



**11.3** Employment and output values of TVEs in China (1978–2010)

Source: State Statistical Bureau 2009: 49, 51; 2011; GVO of TVEs in 2010 is from [www.moa.gov.cn/fwllm/jjps/201102/t20110201\\_1815659.htm](http://www.moa.gov.cn/fwllm/jjps/201102/t20110201_1815659.htm); GVO of agriculture is from <http://219.235.129.58/indicatorYearQuery.do>

important role in providing livelihoods for the majority of the population. This is especially the case in the poverty-stricken central and western regions of the country, where urbanisation and economic modernisation have been less marked, and a much higher proportion of farmers are reliant on low-return crop cultivation and, above all, grain farming (Ash 2010). Thus, the current government's preoccupation with 'farmers, agriculture and rural development' (*san nong*) is not the paradox it may seem, given the juxtaposition of national agricultural contraction and agricultural dominance in poor regions.

### **China's broad-based agricultural development strategies**

Smallholder agriculture drove China's agricultural revolution, which served as the basis for the country's dramatic economic transformation and poverty reduction over the last 30 years. Various factors have been adduced as the secrets of this success, including institutional innovations, particularly the Household Responsibility System (HRS) in the early reform years (McMillan et al. 1989; Fan 1991; Lin 1992); technological change (Huang and Rozelle 1996; Fan and Pardey 1997; Jin et al. 2002); infrastructure, in particular irrigation (Wang 2000); as well as market development and trade liberalisation (Park et al. 2002; de Brauw et al. 2004). This section, however, tries to provide a comprehensive picture of the 'developmental state' in China by paying particular attention to the various roles of government, the market and small-scale farmers, and their interactions in shaping China's agricultural development trajectory.

#### *'Agriculture is the foundation of the economy': strong political commitment and sound institutional architecture*

**STRONG POLITICAL COMMITMENT** Agricultural development has always enjoyed the highest political priority and strong public leadership in China, a vast country with a huge population but increasing resource constraints. Food shortages were at the root of many of the dynastic changes that marked its history, and the famine of 1959–61 led to social turbulence. Hence, agriculture, and food security in particular, are deemed to be the basis of social harmony and political stability. The rationale for China's concept of food security, the underlying principle being 'basic'<sup>4</sup> food self-sufficiency, is best illustrated in an old Chinese adage: 'With food in our hands, our hearts can be at peace.'

The political commitment to agricultural development, alongside the slogan 'agriculture is the foundation of the economy', which was coined in the Maoist era, has been passed down to today. Jiang Zemin reiterated the same theme in 1993 by emphasising the need to '... carry out the policy of taking agriculture as the foundation of the economy, and we must give agriculture top priority in our economic work'. The current, fourth-generation, leadership is also at pains to highlight the two major challenges ahead, namely achieving adequate farm output and improving farmers' incomes. A new strategy to 'build a new



socialist countryside' was therefore proclaimed in the new era (see also Ash 2010). A trinity of issues – agriculture, farmers and rural development (*sannong*) – has been put in place to better position agricultural development in a broader-based social and economic rural development context.

**A SOUND INSTITUTIONAL FRAMEWORK FOR DRIVING THE REFORM AGENDA** A public institutional architecture was also established to ensure that strong political commitment to agricultural development was translated into effective pro-poor agricultural policy making and implementation. The prioritisation of the agricultural development agenda in the five-year national development plans is one part of the architecture, and guarantees the fiscal funding and public investment channelled into agriculture (Li et al. 2012). Long-term technological strategic and other sector-wide development plans also have agricultural components that orient the priority, goals and key tasks of technological development in agriculture.

The party and administrative system dedicated to agricultural policy consultation, policy making, funding, implementation, monitoring and adjustment is another impressive part of the institutional architecture. Within the Chinese Communist Party's Central Committee (CCPCC), the Leading Group Office for Rural Work (LGORW) makes all key agricultural strategies and policies. It also acts as the coordination body, integrating policies for different sectors and guiding resource allocations (*ibid.*). For example, by 2012, 11 'Number One Documents' were developed by the LGORW, with various focuses, such as the household-based HRS, market and price, infrastructure and extension. Parallel to the party's agricultural policy development process, the government's agricultural institutions, spanning various ministries, have also developed at all levels. This is detailed below.

*Evidence-based policy making: the institutional arrangement* One key element in China's evidence-based policy making is the advisory role played by various party and government research bodies, such as the policy research department of the CCPCC, the research department of the State Council plus the research institutes pertaining to the council, for example its Development Research Centre, as well as the agricultural policy research centre of the ministry of agriculture (Ravallion 2009; Li et al. 2012). These are further supported by research institutes outside the party and government, for instance those based at universities. The policy development and advisory networks are fully financed by government and staffed by well-trained professionals to provide timely recommendations. They represent the scientific dimension of the policy-making process. In addition, the democratic dimension of policy development is normally expressed in a series of consultations, including a wide range of consultations with farmers.

**EFFECTIVE IMPLEMENTATION ORGANS** To implement agricultural strategies and policies, different ministries related to agriculture also develop their own sector plans for financing and other inputs. These plans are coordinated by the National Development and Reform Commission under the overall direction of the LGORW. The ministry of finance follows the plans to draft budgets, and then all plans and budgets are submitted to the People's Congress for final approval (Li et al. 2012). At the local level, each province replicates a similar structure, designing and implementing its own development strategies and policies tailored to local circumstances, yet following the priorities or principles set at the national level. This vertical structure throughout all levels from central to local, as well as the horizontal structure spanning different line agencies, embodies China's agricultural policy system, ensuring that strategies and policies are developed and implemented in a consistent, adjustable and adaptive way (ibid.).

**ENHANCING HUMAN CAPACITY FOR IMPLEMENTATION** Besides institution building, individual capacity has also been enhanced to improve the performance of the system. Such enhancement has been embedded in China's traditional administrative practices, with college or university graduates promoted to work within the system. Overseas or on-the-job training broadens staff horizons and sharpens insights through continuous learning. All senior leaders, such as provincial vice-governors or senior county officials, have to attend full-time training in agricultural development at a university or college for six months to one year (ibid.). Nationwide training is extended to these policy-implementing leaders once a new strategy or policy is initiated nationally. In addition, different awards and job advancement based on work performance provide incentives for the employee at grassroots level, promoting close interaction between front-line workers and farmers. Successful implementation is also reinforced through party discipline, which requires most staff who are members of the party to follow policy guidelines (ibid.).

*'Seeking truth from facts': expanding agriculture-based reforms through interaction and learning* The process famously dubbed 'feeling our way across the river', coupled with 'the intellectual approach of seeking truth from facts', meant that no blueprint for the coming reforms was available in the initial stages. However, after over 30 years of exploration, an expanding reform process has become apparent, starting with land reform, price liberalisation and market promotion, and moving on to include supporting the off-farm economy and finally to industrial and service development outside agriculture. These reforms have been promoted through a pragmatic approach deriving from continual learning through trial and error. There are roughly four stages of the reform (Fan et al. 2010; China–DAC Study Group 2011b: 34–61), which are outlined below.

### **Box 11.1 Lessons from China's agriculture-led industrialisation experience**

In China, agricultural liberalisation and gradual international integration became the two pillars of Deng Xiaoping's 'going out' policy of economic transformation. A grassroots-originated experimental reform of land ownership, along with price reform for agricultural products and inputs, sparked an agricultural revolution, and a Hong Kong-linked special economic zone (SEZ), with support to small and medium-sized enterprises through microfinance and links to markets, provided a replicable model for the growth of export-oriented manufacturing (Li et al. 2012). In particular, the SEZ played a key role as a testing ground for economic reforms, for attracting foreign direct investment (FDI), for catalysing industrial clusters and for learning new technologies and incubating new management practices (China–DAC Study Group 2011a: 33). This combination of pragmatic policies unleashed agricultural productivity, and the surplus generated from agriculture (supplemented with selected FDI) helped finance China's industrialisation drive, mainly in coastal areas.

The Chinese enabling environment for enterprise development involved: job creation through rural and micro enterprises; labour and wage policies; training and capacity building through joint ventures and aid programmes; local autonomy and decision making; competition between regions and cities; bureaucratic and regulatory reform; access to financing; and creation of appropriate technology and infrastructure. This in turn contributed to a massive flow of people from rural areas into more productive employment in manufacturing and service sectors and out of poverty (Fan et al. 2010).

Finally, the Chinese political leadership was supported in these reforms by the evidence and guidance research institutions such as the China Development Research Group, the Chinese Academy of Social Sciences and the Development Research Centre of the State Council. As a result of these experiments, China developed rather heterodox policy measures, which differed from the policies that would have been prescribed by outsiders. In addition to economic success, the gradualism of the reform process and its reliance on evidence from local experiments helped secure political support and reinforced its credibility.

*Source:* Extracted from notes of the China–DAC Study Group Bamako (Mali) meeting of April 2010

**LAND REFORM** First, from 1978 to 1984, the major reform was dismantling the rural collective system through land reform and moving from collective land management to the household-based tenure system – i.e. HRS. The reform was started spontaneously by small-scale farmers in Fengyang county of Anhui province in late 1978, who were seeking to end their food shortages. HRS offered long-term leases to farmers for a period of 15 to 30 years. Farmers were also allowed greater autonomy in their planting decisions, which unleashed farmers' incentives in agricultural production. Consequently, rural income doubled between 1978 and 1984 (Fan et al. 2002), and the HRS was estimated to contribute 60 per cent to the growth of the early 1980s (Lin 1992). Nearly half of total rural poverty reduction occurred in this early stage of reform (ibid.; Ravallion and Chen 2007).

**DOMESTIC MARKET REFORM** Second, from 1985 to 1993, the policy shifted to domestic market reform and structural adjustment. The farmers' position as the main component of the market economy was further enhanced through fertiliser market liberalisation and transformation of the procurement system from a mandatory quota system to a contract system. Prior to this reform, the 'dual price' system was pervasive in the economy, and farmers were guided by both market and planning price signals, with the latter higher than the former. Thus, increasing procurement prices for some goods greatly benefited farmers, even though these measures were not originally intended to foster the emergence of markets. During the 1980s, quota restrictions were eased and government contract purchasing encouraged the formation of nascent markets. During the process, the government played a crucial role in building a future market for food grains (China-DAC Study Group 2011a: 36–41).

**LINKING AGRICULTURE TO RURAL INDUSTRIALISATION** Meanwhile, additional reforms created incentives for local officials, banks and businesses to encourage the growth of rural industries. These were characterised by the emergence of TVEs to absorb the surplus of labour and capital released by the earlier agricultural reforms and to open the door for China's social and economic transformation. Further liberalisation of prices and quotas favoured entrepreneurial farmers, who began to open small businesses using surplus earnings. What merits highlighting is the dynamism of TVEs and other non-state enterprises, which put competitive pressure on state-owned enterprises (SOEs) and triggered their restructuring.

**OPENNESS TO INTERNATIONAL MARKETS** Third, from 1994 to 2001, reform focused on gradually increased external openness, prior to China's accession to the World Trade Organization (WTO), and on further government liberalisation, particularly in grain procurement after the boost in agriculture and

development of the non-farm rural economy. The monopoly of agricultural trade by state agencies ended and was opened up to non-state enterprises. These reforms resulted in increased market access. Greater integration within the domestic market was achieved, and by 2001 links to the international market were also being promoted. The creation of special economic zones (SEZs) and the liberalisation of FDI also occurred in this period.

**GRAIN MARKET REFORM** Fourth, from 2002 to the present, confronted with stagnant labour productivity in agriculture and a widening rural–urban divide, reforms concentrated on raising farmers’ incomes in the broad context of building a harmonious society nationally and internationally. The grain market reforms were accelerated and the procurement system was abolished in 2004, fully liberalising the grain market. Social policies supporting education, medical services and pensions in rural areas have been put in place since 2002. A new pro-farm package of policies, including extension of direct subsidies to grain farmers and strengthening control of arable land use and illegal land acquisitions, was initiated in 2004. In 2006, the Rural Land Contract Law was issued to strengthen the rights of rural families to their cultivated land. Additionally, in the same year, agricultural taxation was eliminated, marking the end of a 2,600-year tradition.

**INVESTMENT IN PUBLIC GOODS** Throughout the reform era, the government has played a catalytic role by intensifying its investment in public goods for agricultural and rural development. This role was later complemented by co-financing from all levels of government, public service units and farmers themselves (China–DAC Study Group 2011a: 36–41). The farmers’ contribution, in the form of voluntary labour and cash mobilised by the government even after the collective production system shifted to HRS, has been quite impressive (Yang 2010). Agricultural research, development and extension services have also been key areas attracting significant funding from government over the last 30 years. Investment has particularly intensified since China’s WTO accession, making its rise in research activity since 2000 the highest in the world.

*‘Development is a process of learning’: creating synergies between the state, the market and farmers* China’s sweeping reform process since the late 1970s has been largely an incremental learning process. First, agricultural strategy and policy, despite the reform, have been consistent with previous policy, in that agriculture is the basis of the national economy and the grain crop is the central component of agriculture for a secure food supply. Second, market reform for agricultural products has never been radical, but has been based on the experiences and lessons learned from policy experiments at specific places in various regions designed to bring small but widely felt successes.

For example, as the grain market moved towards a free market system, it took more than 20 years to put all the regulations and infrastructure in place. Third, agricultural development has been well integrated with non-agricultural sector development through the encouragement of agricultural diversification and rural enterprises (Li et al. 2012).

The reform process is, to some extent, a fostering process for both the market and for microeconomic actors such as farmers and enterprises, as well as a process of facilitating interaction between the state, the market and farmers in a collective learning project. The farmers have been able, with more freedom, to respond to market signals. Meanwhile, government control and command retreated gradually with the breaking down of institutions such as collective land management through the commune system, price and quota control through the SOE monopolies, and restrictions on rural labour and capital within the agricultural sector through the residential registration policy (*hukou*). With their rights to production surplus greatly enhanced, farmers developed their capacity to participate in China's renascent markets, thereby in turn promoting the market's incremental, albeit at times faltering, maturation through a process of mutual interaction and networking.

The reforms in China have shown that the free market can serve the interests of poor people. However, China's success was not just a matter of letting markets do their work, but was facilitated by strong state institutions that implemented supportive policies and public investments (Ravallion 2009). Both the state and the market spurred on China's agricultural revolution, triggered by the increasing incentives for family farming available through public investment and policies. Overall, the state-led, market-driven and farmer-based model has been the central element in the success of China's agricultural and rural development (Li et al. 2012).

### **Conclusions: the lessons for African countries in agricultural development**

China's remarkable success in economic growth and poverty reduction, triggered by small-scale farmer-based agricultural and rural development, has profoundly impacted the global economy and has shaped the development context of other developing states, such as sub-Saharan African countries. Meanwhile, China is now playing a critical role as an economic and development partner in Africa, particularly in agricultural cooperation and poverty reduction (China-DAC Study Group 2011a: 36–41). There is growing interest among African countries in learning from China, and China's experiences in agricultural and rural development provide valuable lessons for the transformation of African agriculture, despite the great differences in natural endowments and demographic, socioeconomic, ethnic, political, historical and cultural circumstances. This section highlights three key elements in

China's agricultural and rural development experience relevant to sub-Saharan African countries.

First of all, grain production for food security and improving productivity should be the top priorities in agricultural development in sub-Saharan Africa in order to break the pattern of inequality, social exclusion and poverty. China's strategic stress on a high grain self-sufficiency target provides the necessary and consistent foundation for relatively stable and self-oriented development approaches, in addition to directly helping to alleviate poverty. In contrast, in sub-Saharan Africa, countries' agricultural sectors have been deemed mainly a key source of foreign exchange earnings, so that production of export-oriented cash crops has been overemphasised, resulting in low grain self-sufficiency. This ultimately leads to high dependence on imports from the international grain market or foreign food aid to meet grain demand. Dependence, on the one hand, for such strategic resources as grain on the international market or aid, and limited and vulnerable foreign exchange earnings from cash crops on the other, naturally lock sub-Saharan African countries into an externally focused trajectory. To resolve the dilemma, grain production to ensure food self-sufficiency should be kept in mind. In the words of the then president of Malawi: 'Enough is enough. I am not going to go on my knees to beg for food. Let us grow the food ourselves' (Juma 2011: 3).

The difference in productivity, particularly land productivity, best illustrates the divergent performance of China and Africa in agricultural development. China has established a high-investment and high-yield agricultural production system, while Africa is still trapped in a low-investment and low-yield cycle (Li et al. 2010: 236). Productivity matters both for enhancing grain production to ensure food security and for increasing cash crop yields to advance international competitiveness. Clearly, there is considerable potential for agricultural development in sub-Saharan Africa, given its abundance of land, water and other natural resources, as well as its potential for technological, policy and input improvement. The extensive type of agricultural development of the past three decades should be transformed into intensive cultivation by combining traditional practices with modern technologies. This will contribute to employment creation and to reducing the greenhouse gas emissions resulting from deforestation through land expansion.

Second, sub-Saharan Africa's agricultural renewal should trigger an upgrading of the agricultural value chain and the flowering of the non-farm economy. The stark contrast between China's and sub-Saharan Africa's economic performance and poverty reduction indicates the importance of a flourishing agricultural sector in a broad-based development process, particularly when the vast majority of the poor remain in rural areas. It becomes ever more evident that once basic grain output and food security have been

achieved, the surplus of labour, land and capital will be released to naturally stimulate an adjustment of the agricultural structure and the generation of a non-farm economy. This, in turn, will ultimately strengthen the upgrading of agriculture in the value chain and thus boost farmers' incomes.

In Africa, despite the existence of some high-yielding and export-oriented modern agricultural enterprises, the continent as a whole is dominated by countless small-scale farmers and has been trapped in low value-added subsistence activities. Although both agricultural diversification and non-farm activities have been developed in sub-Saharan African countries since independence, an upward trend has not yet been seen. The agricultural structure has been static, and incentives for fundamental change have yet to take effect. For many farmers, agricultural diversification and de-agrarianisation are more a necessity than an option. China's pro-poor and pro-market policies should be taken into account in triggering agricultural upgrading.

Third, the evidence-based policy-making and learning process should be at the centre of the home-grown development approach in sub-Saharan Africa. Despite negative consequences such as rural–urban dualism, wealth disparities and resource degradation, it is fair to claim that the Chinese government has adopted a consistent series of strategies, policies and measures. These can be characterised as pragmatic learning through trial and error to leverage market forces and farmers' engagement in order to advance agricultural development and overall growth. This approach demonstrates that, with the state serving as the initial economic agent and facilitator of change, output will increase and stimulate dramatic responses by the countless small-scale farmers to newly unleashed market incentives. The synergies between the state, the market and small-scale farmers have been soundly advanced.

However, in sub-Saharan African countries, agricultural development strategies and policies have been either externally or regionally (Africa) initiated, and have been poorly implemented at the country level. Agricultural policies have barely touched dispersed small-scale farmers or supported their capacity to improve productivity, and it is difficult to improve the incentives available for them to respond to market opportunities in the interests of agricultural enhancement. In strong contrast to China's sound administrative hierarchy and policy system, which have a long history and are deeply entrenched, sub-Saharan African governments' capacity to reform and determine strategy, and then to adjust agricultural policies through critical feedback loops, has been largely missing (*ibid.*: 45–82). It is time to strengthen the current system through capacity building, as envisaged in the fostering of the 'developmental state' in sub-Saharan Africa, rather than by dismantling it under 'good governance' aid criteria, on the grounds that it is a major institutional constraint blocking development.





## **12 | Conclusions and the way forward**

Fantu Cheru and Renu Modi

Agriculture will remain the foundation for Africa's growth and industrialisation for the coming decade and beyond. As the experience of China, India and Brazil has shown, no country can enter the industrial age without developing the agricultural sector. In the specific case of Africa, however, the agricultural sector has been starved of essential investments, for example in infrastructure, technology, and research in and development of high-yielding seeds, as well as lacking an enabling policy environment to support the productivity of both smallholders and large-scale commercial farmers. The increasing engagement of countries such as China, India and Brazil with the African continent is an opportunity that African governments must harness effectively in order to overcome a long list of constraints, by tapping into the financial resources, technology and expertise that these successful emerging economies can offer.

The collection of essays in this volume convincingly argues that private and sovereign investors from China, India and Brazil, together with official aid and technical assistance from the three countries, have made a positive contribution to improving the productivity of African agriculture through technology transfers, the building of institutional capacity, improvements in critical infrastructure such as roads and irrigation systems, and by building up a critical mass of local agricultural experts in various agricultural fields. These multiple interventions have laid the foundations for a radical transformation of African agriculture, which will enhance food security in the years ahead and propel the continent to become a major exporter of high-value agricultural products to world markets. Furthermore, Africa's increasing engagement with these three emerging countries has helped the continent reduce its traditional dependence on Western sources of finance, technology, products and services, further expanding policy space and enabling the continent to chart an independent development path.

Above and beyond the technology transfer and financing opportunities that China, India and Brazil collectively offer to the continent, the three countries have also added tremendous value to Africa's development planning process, by sharing their respective successful experiences of how they embarked on their transformative paths, from being food-insecure countries to becoming major exporters of agricultural products to world markets in a relatively short 30-year

period. Therefore, for many African countries, the three emerging countries can serve as important reference points as they forge ahead with national and continental strategies to radically transform their agricultural sector.

At the initial stage of their development, these three emerging countries adopted appropriate domestic policies, built critical rural infrastructure, improved research capacity and undertook land reforms – all key ingredients that have helped unleash agricultural potential in their domestic contexts. Today, African countries stand at the same stage of development as China, India and Brazil three decades ago. With the right policies and committed political leadership, Africa can also become a major supplier of food and other agricultural commodities for the domestic and global markets. Africa's engagement with China, India and Brazil is an opportunity that must be harnessed intelligently in order to build the foundations for the structural transformation of African agriculture.

### **South–South cooperation in agriculture: opportunities and challenges**

African governments have built their agricultural cooperation strategy with the emerging countries around a set of issues: building capacity in water resource management and irrigation systems; combating agro-based diseases; upgrading agricultural technological capacity and building the necessary rural infrastructure; training a critical mass of agricultural experts through enhanced cooperation between higher education institutions; and securing stable and predictable financing. The three development partners pursue similar strategies, more or less, in support of agricultural development in Africa. These include a focus on private sector investment in commercial agriculture alongside a technical cooperation strategy aimed at improving the productivity of small-scale farmers who produce for subsistence.

In the case of India, emphasis has been on the development of commercial farming through large-scale land acquisition by large Indian private investors such as Karuturi Global. As far as African small-scale farmers are concerned, technical assistance and demonstration farms have been the main instrument to enhance their productivity. With respect to commercial farming, private companies have been engaged in capacity-building initiatives, technology transfer and resource mobilisation facilitated by the lines of credit facility of the Export-Import Bank of India and via direct private sector investments. Private sector companies such as Jain and Kirloskar transfer water management and irrigation technology, while other established companies, such as Tata Group, Sonalika International, Mahindra and Mahindra, and Angelique International Limited, supply farm tractors, water pumps and irrigation technology at affordable prices. However, at the time of writing, there was little evidence to suggest that expensive infrastructure built to service large-scale commercial farming is directly benefiting small-scale farmers who cultivate at the subsistence level.

China, on the other hand, has focused less on acquiring African land to promote large-scale farming and more on investment in demonstration farms, improving rural infrastructure, and upgrading the China-supported large-scale agricultural projects in countries such as Zambia, Zimbabwe and Mozambique that date back to the 1960s and 1970s (Bräutigam and Xiaoyang 2009). As in the past, technical cooperation and human resource development, including the building of agricultural technical demonstration centres, the dispatch of agricultural technical teams and senior experts, and the provision of vocational technical education to improve local agricultural expertise and knowledge, remain the centrepieces of Chinese engagement in African agriculture. The size of such exchanges increased significantly after the establishment of the Forum on China–Africa Cooperation (FOCAC) in 2000. For example, at the conclusion of the fifth FOCAC, held in Beijing in July 2012, the Chinese government announced a further expansion of the technical cooperation and exchange programmes. China will implement an ‘Africa Talent’ programme, and, in the period 2013–15, it will train 30,000 African professionals in various sectors, offer 18,000 government scholarships and adopt measures to improve the content and quality of training programmes (FOCAC 2012).

As of 2011, China had dispatched 104 senior agro-technology experts, set up 20 agricultural technology demonstration centres, deployed 50 agricultural technology teams and trained 3,000 agricultural experts from Africa in Chinese educational institutions. One of China’s most extensive engagements has been in Ethiopia, where the Chinese government has supported an agricultural vocational education project involving 14 Ethiopian agricultural colleges. The programme is credited for producing more than 60,000 graduates and has helped Ethiopia to establish a complete agricultural vocational education system (MOFCOM 2011).

Moreover, China has also shown an interest in exploring other avenues of collaboration, including through private philanthropy, to improve African agriculture. In this regard, the Chinese Academy of Agriculture has partnered with a number of Chinese and African institutions to support an international initiative by the Bill and Melinda Gates Foundation to create green super-rice, a new variety that can survive in the harsh environments of Africa (Davis and Woetzel 2010).

Although a latecomer to the African continent, Brazil has started to make significant interventions in Africa’s agricultural sector through investment in land and technical assistance. Although investment in land to grow biofuel has been limited so far to Mozambique, negotiations started in August 2012 between the Tanzania Investment Centre and seven Brazilian agricultural companies that are keen to invest in the country to grow soya, sugar cane, corn and cotton (*Guardian* 2012).

The Brazilian strategy of supporting African agriculture is very much

informed by its own domestic experience. The strategy is based on high-technology commercial farming and direct support to family farmers, the approach that propelled Brazil to becoming a major supplier of food and other agricultural commodities for the domestic and global markets. Here, a major role has been played by Embrapa – the state-owned research enterprise that has helped Brazil's rise to the position of leading global exporter of sugar and coffee, soya beans for animal feed and maize. The production-oriented approach was complemented by a deliberate attempt by the state to deal with the problem of food insecurity among the population through targeted programmes such as Bolsa Família, the Zero Hunger strategy and other social protection policies that have led to inclusive growth and overall poverty reduction. These lessons are reflected in Brazil's assistance policy on the African continent.

The key institutional mechanism through which the Brazilian dual model of agricultural development is being transmitted to African countries is Embrapa – the state institution credited for the Brazilian agricultural miracle. Embrapa's mission is the transfer of technology and sharing of replicable experiences from Brazil. Ghana, Benin, Guinea, Kenya and Ethiopia have also signed technical cooperation agreements with Embrapa. In addition, the Africa–Brazil Agricultural Innovation Marketplace brings together Embrapa and African researchers in order to create seed banks for family farmers. Embrapa is also engaged in knowledge and skills transfer in low-cost and replicable agricultural techniques, such as value addition to tropical fruits, cassava and vegetables; improving sanitary and phytosanitary standards for exportable agro-products; climate change mitigation measures through water management; the dissemination of rice seed cultivation technology to smallholder farmers; and improved livestock management.

In sum, the overall impact of Chinese, Indian and Brazilian investments and technical assistance to African agriculture has been positive in terms of technology, the financing of rural infrastructure, and the building up of critical African agricultural expertise. Despite these positive developments, however, there are areas of tension in this evolving relationship between Africa and the three development partners as it relates to the current strategy to support African agriculture. Below is a brief description of each one of these areas and how to resolve them.

### **Areas of tensions**

As the preceding chapters have demonstrated, the three emerging powers from the South have undoubtedly started to make a marked contribution to revitalising African agriculture, by addressing the technology gap, by developing critical skills in agricultural research and analytical capacity, and by introducing new innovations in value addition to agricultural commodities which will help

the continent benefit from the growing global demand for food. However, their large-scale investments in land for commercial farming of agricultural produce for food or biofuels have been contested by local communities and by national and international civil society organisations, since these investments undermine local livelihoods.

*Foreign investment and the question of land rights* Of the three development partners, India has the most extensive engagement in Africa, with a sizeable number of Indian private sector investors having entered into land lease agreements, most notably in Ethiopia. According to civil society organisations, large-scale land acquisition by Indian private sector investors has led to forced relocation of small-scale farmers and pastoralists, often with little compensation for the loss of basic land rights (see Chapters 5 and 6). These criticisms stand in stark contrast to the purported benefits for local communities that governments and investors had originally claimed would result from these ventures.

Although there are over 80 Indian companies that have forayed into commercial agriculture or horticulture in Africa, the largest Indian investor, Karuturi Global, has received the most criticism and scrutiny from human rights groups and environmentalists. In a number of cases, private investors have failed to deliver on their promises of infrastructure development and support to smallholder farmers (see Chapter 5). This is partly due to the lack of robust local mechanisms to enforce compliance with investment commitments made by foreign investors. However, Gurjit Singh in Chapter 3 challenges these accusations and asserts that Indian companies are contributing to African agriculture in many ways.

In contrast to the case of Indian investments in Africa, our research found no conclusive or incriminating evidence to support the assertion that China is also engaged in large-scale ‘land grabbing’ in order to produce biofuel or food for the Chinese market. China’s investments in the agricultural sector, particularly in large-scale state farms, have historical antecedents. From the 1960s until the mid-1980s, China’s aid programme supported the establishment of large state farm complexes in a number of African countries (Bräutigam and Xiaoyang 2009). Many of these investments turned out to be economically unviable due to poor management, corruption and lack of maintenance and were consequently abandoned by African governments.

In the present context of China–Africa relations, Chinese aid programmes have largely been focused on reviving many of these abandoned state farms dating back to the 1960s, in addition to expanding a technical assistance programme aimed at improving rural infrastructure and human resource development. Unfortunately, China’s recent interventions to upgrade large-scale farms in a few African countries have erroneously been labelled by critics as ‘land

grabbing', a charge that Chinese authorities reject, and rightly so. Compared with India and other investors from the Gulf states, China's involvement in land acquisition has been insignificant. In fact, China's 20-year food security strategy released in 2008 by the National Development and Reform Commission did not include foreign land acquisition as a pivotal feature of the strategy, with the exception of soya bean production in Brazil.

This is not to suggest that China will never be interested in outsourcing its domestic food demand by entering into land lease arrangements with African countries in the future. As Simon Freemantle and Jeremy Stevens (Chapter 10) convincingly argued, there is a steadily rising demand from a growing middle class of Chinese consumers for high-value agricultural products, but a declining national capacity to meet this demand from domestic sources due to land and water shortages. This situation is likely to push China into looking at the African continent as a supplier of food to feed China's large population.

The chapters by Thomas Cooper Patriota and Francesco Maria Pierri and by Kai Thaler (Chapters 7 and 8 respectively) offer a critical analysis of Brazil's role in Africa's agricultural sector. The two chapters highlight that Brazil is sharing tropical agriculture technologies, mainly through Embrapa, for the production of food crops as well as biofuels in several countries on the continent. Although Brazil's work through the Africa–Brazil Agricultural Innovation Marketplace, a technological innovation platform that works in partnership with the Forum for Agricultural Research in Africa, the Cotton-4 project in Mali, the Rice Culture project in Senegal and the Triangular Cooperation Programme for Agricultural Development of the African Tropical Savannah (the Pro-Savannah Japan–Brazil–Mozambique project) have been lauded, the Latin American counterparts' initiatives and collaborative ventures for biofuel production and related activities, such as in Mozambique, have generated intense debates around the issue of biofuel and 'land grabbing'. Patriota and Pierri (Chapter 7) point out:

Food security, environmental and labour conditions and how these relate to land use and tenure are also the three main issues at stake regarding the potential and pitfalls of biofuels, whether in Brazil or Africa.

Concerns about changes in land use and its diversion for the production of biofuels and biofuel feedstock are echoed by Thaler in the following chapter (Chapter 8). A cautious approach is required in the aftermath of the food riots that erupted in many African countries in 2007–08 and in Maputo in 2010. Patriota and Pierri rightly point out that these riots were related 'not only to rising food prices but also to the higher costs of public transport as a result of the parallel hike in oil prices'.

Brazil's official cooperation with Mozambique in the area of biofuels began only about five years ago, in 2007. It remains to be seen if Mozambique's biofuel

feedstock production can include smallholder farmers and whether ethanol production can lower energy dependence in the country. Or will Mozambique be used just as a conduit for the export of ethanol to the European Union and other countries at lower tax rates due to the preferential terms of trade accorded to a developing country? Finally, the assessment of Brazilian development assistance programmes and foreign direct investment (FDI) in Africa will be based on how the Latin American giant and its African counterparts resolve the potential tensions between biofuel feedstock and food production and enhance food security, mainly for smallholder farmers, through technology transfers and capacity-building initiatives undertaken by Embrapa.

*How to break the impasse: democracy or voluntary guidelines?* FDI in African agriculture can become a source for good if appropriate policies are put in place to ensure that the rights of local communities who are affected by large-scale land acquisitions are protected. Our research has shown that, in countries where the formal recognition of land rights is the weakest and where meaningful democratic procedures and accountability are absent, the incentive for large-scale foreign investors to enter into questionable land lease agreements has been strong. In countries such as Ethiopia, where the state exercises complete control over land and decision making, large-scale land lease arrangements have taken place without the prior informed consent of local subsistence farmers and pastoralists.

To rectify the problems associated with the acquisition of land by private investors, there have been a number of initiatives by international organisations and environmental and human rights groups to introduce a set of voluntary guidelines for the responsible governance of the tenure of land, water, forests and fisheries. The most notable ones are: *IFC Performance Standards on Social and Environmental Sustainability*; the United Nations' *Guiding Principles on Business and Human Rights*; the Round Table on Sustainable Biofuels; the Food and Agriculture Organization's *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests*; and the joint African Union/African Development Bank/Economic Commission for Africa *Framework and Guidelines on Land Policy in Africa*.

While these voluntary guidelines can serve as useful reference points for policy makers and investors, they are effective only when translated into enforceable national laws. Simply allowing private investors to sign up to voluntary guidelines would amount to granting them the right to engage in abusive farming practices, further creating the conditions for land-related conflicts to spread. Many tenure problems arise because of weak governance. Therefore, the governance of tenure is a crucial element in determining if and how people, communities and others are able to acquire rights, and associated duties, to use and control land and other resources.<sup>1</sup> National laws should



protect the holders of tenure rights against arbitrary loss of those rights, and should ensure prompt and just compensation when tenure rights are taken for public purposes.

The contributors to this book agree that good and democratic governance offers a panacea to the problems caused by large-scale land acquisition. While adherence to voluntary guidelines on social, economic and environmental standards have the potential to promote meaningful interaction between local people and international investors, they are by no means a substitute for strong national laws and regulations on a fair and transparent system of natural resource governance that will produce a win-win outcome for the investor and the host country.

*Biofuel versus food crops?* The debate over food production for local consumption versus the production of export commodities has always been a central feature of African development options and dates back to the 1960s. In its current incarnation, the debate is centred on the production of biofuel for export. In the present study, only Brazilian investment has been implicated in the promotion of biofuel production in Africa. This should not be surprising given Brazil's status as a leading country in ethanol production.

Brazil's investments in land used for the cultivation of biofuel feedstocks such as sugar cane, jatropha and soya beans in Mozambique have been highly controversial. Brazil's cooperation in the biofuel sector began as recently as 2007, with Brazilian trans-national companies such as the mining giant Vale, Sena Mills and Petrobras engaged in assisting Mozambique in biofuel production. The diversion of agricultural land to grow biofuel in food-deficient countries is viewed by civil society organisations as an irresponsible act that undermines respect for human rights.

*Small-scale farmer versus commercial agriculture* At present, the predominant modes of technical assistance and private investment in African agriculture are directed towards the development of large-scale commercial agriculture, with a limited number of interventions oriented towards the small-scale farmer. However, the debate on transforming African agriculture should not be confined to a choice between commercial agriculture and small-scale family farming. They can co-exist and complement each other. What is important is to ensure that small-scale farmers benefit from improvements in infrastructure and services (i.e. irrigation, roads and electricity), research and development, and science and technology made to support the development of large-scale commercial farming. This can be done by restructuring land investment deals in such a way that the value is shared with smallholders. This could take the form of contract farming with individual farmers or smallholder cooperatives, joint ventures, and community leases and management contracts (Hunt and Lipton 2011).

Whatever business model is agreed, it should be developed in consultation with civil society, local farmers' associations, the private investor and national and local government actors in order to delineate roles and responsibilities, and to establish how costs and benefits are to be shared. Transparency and consultation are important preconditions for such an approach to work. The IBSA (India, Brazil, South Africa) Fund can be used to experiment with models that link small-scale farmers with commercial farmers.

The two-tiered structure of Brazil's policy framework to support African agriculture is a model worth pursuing. First, there is the sharing of tropical agriculture technology, mainly provided by Embrapa, often in tandem with investment in technology transfer for the production of food crops and biofuel. Second, there are various forms of support for African family farming, mainly coordinated by the Ministry of Agrarian Development; these range from sharing policy expertise to public purchase schemes linked to domestic food aid and school feeding programmes. The approach that Brazil implements in Africa is a direct reflection of the dual model inherent in Brazil's own agricultural policy framework, with support for agribusiness provided by the Ministry of Agriculture, and for family farming by the Ministry of Agrarian Development.

*Ensuring that technology transfers are relevant to the needs of small-scale farmers* The evidence presented in this book clearly shows that agricultural technology transfer to Africa is taking place and is likely to continue in the future. At the same time, however, an observation can be made regarding the appropriateness of the technology being transferred to the vast majority of African subsistence farmers. The present policy environment, which is aimed at attracting FDI into Africa, is not designed to promote links between high-technology-based large-scale commercial agriculture and the smallholder sector. The overemphasis on industrial agriculture is altering systems of land management, and this will have huge social and environmental ramifications and will further marginalise small-scale farmers, herders and minority groups.

In this regard, great effort must be made by African policy makers to ensure that infrastructure and vital rural services built to support commercial agriculture also benefit smallholder farmers. Land lease agreements should spell out the obligations of the commercial farms to downstream benefits to peasant farmers and pastoralist communities, and, right from the start, a system of monitoring and evaluating compliance should be established that will involve all stakeholders on a regular basis – i.e. government extension workers, local authorities, representatives of commercial farmers and local farmers' associations.

Against the backdrop of the challenges faced by countries in Africa with regard to land and related issues, governments on the continent drew up a set of recommendations at the eighth African Development Forum, held in

**Box 12.1 Land and Africa's development: recommendations of the eighth African Development Forum**

In light of the challenges and opportunities associated with the increased domestic and external pressure on African land resources, governments of the continent are called upon to:

a) identify established local land rights, interests and claims, and clearly determine how much land is available and where it is located before engaging in large-scale land allocations. The process should take into account land that is under traditional systems of agriculture, including shifting cultivation, fallow farming and pastoral grazing. Mapping and documenting land rights, interests and claims of communities and individuals should go beyond ownership rights and include user rights to land and related resources. Spatially referenced information on land will provide an evidence base that will be indispensable to planning at the local, regional and national levels, and will also help overcome unfair dispossession or stripping of the land right of communities;

b) explore innovative and inclusive large-scale land-based investment (LSLBI) models that empower smallholder farmers and communities and offer provisions to protect national food security, thereby achieving equitable agricultural and rural transformation in Africa. To this end, LSLBIs should adhere to the Comprehensive Africa Agriculture Development Programme principles which enjoin African governments and stakeholders to reverse unhelpful and inconsistent macro and sectoral policies that are biased against agriculture in general, and smallholder farmers in particular;

c) adopt appropriate policy frameworks that articulate modalities for access to land by both domestic and foreign investors and recognise the land rights of local communities and investors in order to facilitate and secure profitable and equitable LSLBIs. Optimal structuring of land deals requires evidence-based, transparent and consultative negotiations on the main elements. Some of the key elements that must be carefully considered are: optimal land size and land lease period; potential costs and benefits and how they are to be shared and distributed; terms of further allocations; basis and terms of compensation; protection of well-being of smallholder farmers, including the women among them; community participation and a sense of ownership; provisions for withholding production for domestic use to address food and energy security; fiscal and other provisions to minimise land speculation; and regulatory mechanisms for enforcement;

d) strengthen property rights, especially those falling under customary jurisdictions that serve as the principal regime under which most of Africa's abundant land lies. In this regard, there is an urgent need to fast-track implementation of the African Union Declaration on Land Issues and Challenges in Africa, in accordance with the *Framework and Guidelines on Land Policy in Africa* that aims to reform land policies, laws and administration systems, with a view to entrenching the land rights of local communities and facilitating the security of all bundles of land rights, interests and claims, especially for women and other vulnerable groups;

e) ensure, in partnership with other stakeholders, that LSLBIs give due consideration to environmental sustainability and climate change concerns. In addition, make effectively enforced and properly monitored environmental stewardship a central component of contractual arrangements with land investors;

f) strengthen institutions that govern land rights, along with those that facilitate investments and oversee the regulatory environment, to ensure that land deals attain their economic, social, gender, inter-generational and environmental goals. Well-functioning land markets that facilitate transparent land transfers are critical to creating an enabling environment for investments by large-scale investors and smallholder producers alike. This is essential not only to reducing the yield gap, but also to providing the basis for a structural economic transformation that allows the rural population to move into non-farm employment as appropriate;

g) mobilise financial and human resource capacity support for the implementation of the Nairobi Action Plan on LSLBIs in order to enhance the governance of LSLBIs in Africa. Resources are urgently needed to ensure that African governments and stakeholders validate these principles to create the sense of ownership that is critical to implementation. Support is also needed for capacity development and monitoring for responsive LSLBIs; and

h) engage the land policy initiative (LPI) as a possible institutional resource for the implementation of the African Union Declaration on Land and the Nairobi Action Plan on LSLBIs. This would mean that all the activities contained in the LPI strategic plan, including capacity building, would have to be adequately mainstreamed at the national, regional and continental levels.

Source: United Nations Economic Commission for Africa (2012) *Draft Consensus Document of the Eighth African Development Forum on the theme 'Governing and Harnessing Natural Resources for Africa's Development'*, 23–25 October 2012, Addis Ababa, Ethiopia, ECA/ADF/8/L, pp. 4–5

Addis Ababa, Ethiopia, at the end of October 2012, on the theme 'Governing and Harnessing Natural Resources for Africa's Development'. Although these recommendations are non-binding, they provide a set of people-centric guidelines to governments to help them reconcile the interests of foreign stakeholders in Africa's land with, most notably, the rights of smallholder farmers and women in particular. The outcomes of the Development Forum are outlined in Box 12.1.

### **The way forward**

The contributors to this volume are conscious of the ongoing debate over whether the technology and farming techniques being injected into the agricultural sector of Africa by investors from China, India and Brazil, particularly the use of chemical fertilisers, pesticides and herbicides, will have a negative impact on people and the environment. These concerns are not the central focus of this book, although the topic deserves thorough treatment in future research. Nevertheless, even in the present environment, where interest in African land is growing, it is not too late to design more environmentally and socially sustainable systems, and learn from the mistakes of others in order to leapfrog technologies. The onus is on African governments to do their homework first in order to negotiate with foreign investors from a stronger platform and better informed position, so that real and tangible benefits accrue to African host governments and the domestic farming constituents that they claim to represent. In situations where land lease arrangements may result in negative consequences to smallholders and the surrounding communities, such arrangements should be based on free, prior and informed consultation with the affected communities as well as adequate compensation and restoration of livelihoods.

To reiterate, the few instances of economic success in developing countries have been in countries where a strong and development-oriented state has actively taken an interest in mobilising the population around a common long-term national development vision aimed at improving the welfare of its people. China, India and Brazil are examples of such countries. Their success in transforming their respective agricultural sectors has been the result of a combination of factors, mainly investment in critical rural infrastructure, such as roads and irrigation schemes, the provision of fertilisers, improved seeds, innovations in technology, provision of microcredit and improved land tenure

systems, and a focus on raising the productivity of smallholder farmers. In other words, Africa can escape the scourge of poverty and food insecurity and embark on a process of agriculture-led industrialisation, just as China, India and Brazil did, under the guidance of capable and development-oriented states committed to mobilising their populations around a common national development project aimed at improving popular welfare, and preserve their national independence.

# Notes

## 2 Moyo

1 The author acknowledges research assistance provided by Ndabezinhle Nyoni.

2 Consumers were captive 'price takers' because they could not dictate prices or procure from alternative suppliers.

3 As a share of world food production and consumption, Africa's food consumption averages 12 per cent, while food production remained below 8 per cent between 1999 and 2007 (FAO 2010).

4 Traded food prices increased by 130 per cent from January 2002 to mid-2008, and by 50 per cent from January 2007 to June 2008 (Mitchell 2008: 2). Grains showed the earliest and highest price increase from 2005, although the global grain crop harvest of 2004–05 was 10 per cent higher than in the three previous years and about 9 per cent higher than the 2005–06 harvest. The prices of fats and oils increased in mid-2006, although the 2004–05 and 2005–06 seasons had recorded a 13 per cent increase in oilseed harvests.

## 3 Singh

1 For more details, see Table 2A.1 in Broadman (2007: 114–15).

2 Further information is available at [www.indiaafricasummit.nic.in](http://www.indiaafricasummit.nic.in).

3 For a detailed list, please refer to [www.icar.org.in/en/krishi-vigyan-kendra.htm](http://www.icar.org.in/en/krishi-vigyan-kendra.htm).

4 For an elaboration of the impact of Economic Partnership Agreements, see Singh (2007).

5 The Team 9 countries are the nine West African countries to which India provides technical assistance.

6 Personal communication with members of Ethiopia's parliamentary

standing committee on agriculture and rural development, 8 June 2009.

7 Personal communication with investors at a meeting of the India Business Forum, Addis Ababa, April 2009.

8 Personal communication with Arvin Boolell, foreign minister of Mauritius, January 2011.

9 Personal conversation with Hailemariam Desalegn, foreign minister of Ethiopia, January 2012.

10 Personal communication with farming communities of People of Indian Origin around Lake Victoria, April 1997.

11 Discussions at the India Business Forum, Addis Ababa, October 2011.

## 4 Modi

1 I acknowledge with gratitude the research assistance of Johan Salazar, currently a doctoral candidate at the Tata Institute of Social Studies.

2 For details, see Tables 4.1(b) and 4.6(b) of Government of India 2012b. See also [www.agricoop.nic.in](http://www.agricoop.nic.in) (accessed 23 March 2012).

3 See [www.sonalika.com](http://www.sonalika.com) for more information.

4 See also [www.eximbankindia.com/loc.asp](http://www.eximbankindia.com/loc.asp).

5 See also [www.mahindratractorworld.com](http://www.mahindratractorworld.com).

6 See also [www.eximbankindia.com/loc.asp](http://www.eximbankindia.com/loc.asp).

7 See also [www.cottontapafrika.org](http://www.cottontapafrika.org) and [www.ilfclusters.com](http://www.ilfclusters.com).

8 It is estimated that the country will import 1.5 to 2 million bales from the US, Australia and West Africa due to lower domestic supply and lower prices abroad.

9 See also [www.luckygroupcompanies.net](http://www.luckygroupcompanies.net).

10 See [www.cottontapafrika.org/news.htm](http://www.cottontapafrika.org/news.htm).

11 For details, see EXIM Bank 2011: 3.

12 Of the total LOCs to Africa, East Africa is the largest beneficiary, receiving over half the LOCs extended to Africa, followed by West, Central and Southern Africa.

## 5 Rahmato

1 This research is based on extensive fieldwork in the Gambella region. It involved individual and focus group discussions with 42 farmers in the affected areas, local government officials and employees of Karuturi Global. The districts visited included Tekodi sub-*kebele* in Prepengo *kebele*, Ouchok Ouchala sub-*kebele*, Tepi *kebele* and Bechera Oda Gibe *kebele*, all in Gambella.

2 Ethiopia has adopted an ethnic-based federal system of government. The main units of the federation are 'regions' (*killils*), which are divided into zones (equivalent to provinces), *woredas* (districts) and *kebelles* (sub-districts). The terms 'region' and 'zone' are misleading, and do not adequately convey the meaning of the administrative entities to which they refer.

3 *Enset* is a product produced from a type of banana leaf.

4 The document appeared in Amharic in 2001, and was translated into English in 2003.

5 Also reported in a local Ethiopian business weekly, *Fortune*, on 15 November 2009.

6 See the MOARD publications (some posted on its website) listed in the References.

7 Reported in *Fortune* on 15 November 2009.

8 As reported in two local newspapers, *Deccan Herald* and *Fortune*, on 14 February and 20 February 2010 respectively.

## 7 Patriota and Pierri

1 These totalled US\$352,073 billion in November 2011 (Central Bank of Brazil, [www.bcb.gov.br](http://www.bcb.gov.br)).

2 Embrapa is linked to the Ministry of Agriculture, Livestock and Food Supply.

3 In 2008 alone, demonstrations took place in more than 30 countries, most of them in Africa (Antil and Touati 2009), while more recent food price hikes played a fundamental role in countries affected by the so-called 'Arab Spring' of 2011.

4 Brazil's family farming sector is made up of approximately 4.3 million families, accounting for 84.4 per cent of farms, but only 24 per cent of agricultural land, and is responsible for 33 per cent of national agricultural output, most of it destined for the internal market (França 2009).

5 The term 'plurilateral', which originally comes from WTO jargon, has been increasingly used by international relations scholars to describe groups composed of a limited number of countries, but with a global agenda differing from regional integration (e.g. Mercosul) or multilateral arrangements, such as the G77.

6 The study conducted by Ipea (which found that total cooperation amounted to US\$1.4 billion between 2005 and 2009) did not break down amounts by country or region; therefore, only official ABC amounts are shown in this table.

7 See [www.africa-brazil.org](http://www.africa-brazil.org) for more information.

8 Twenty-five Brazilian companies and representatives from 16 African countries participated in the event (Freemantle and Stevens 2010).

9 The WTO decision on the Brazil-US dispute (DS267) issued in 2009 confirmed suspicions of US and EU dumping of products in developing markets.

10 Data collected after three years of experimental cultivation are to lead to recommendations in order to start large-scale production in 2012, which could eventually be extended to other African cotton-producing countries, such as Ghana and Uganda (World Bank 2011b).

11 Indeed, while 'annual average consumption is 74 kg per person', 'in 2007,



80 percent (820,000 tons) of Senegal's local consumption was imported, and 16 percent of the trade deficit reflected rice imports' (World Bank 2011b).

12 According to JICA, 'actions executed ... will be based on respect of environmental agreements signed by the three countries towards the durable and sustainable development and preservation of resources for future generations'.

13 The UEMOA memorandum of understanding called for feasibility studies on the production of biofuels in member countries. In 2011, a proposal was submitted by Embrapa and ABC to Senegal confirming the country's potential for sugar cane-based ethanol.

14 In 2007, the EU 'agreed that bio-fuels must make up at least 10% of the energy utilised for transport'.

15 The African countries are Senegal, Guinea, Guinea-Bissau, Liberia, Mozambique and Zambia (FGV Projetos 2011).

16 Since January 2010, under Brazilian law all diesel sold at gas stations must comprise at least 5 per cent biodiesel, thus generating a national market of 2.4 billion litres per year. In 2010, 32 businesses were operating under the 'Social Fuel Seal' as a result of their minimum purchases from a pool of 54,000 family farmers (Cassel 2010).

17 MDA was created in 1999 and has been given a higher profile since 2003, playing a fundamental role in the Zero Hunger strategy. Since 2011, it has been one of the main ministries involved in President Dilma Rousseff's Brazil without Extreme Poverty strategy.

18 The National Fund for the Development of Education (Fundo Nacional de Desenvolvimento da Educação or FNDE) is a Ministry of Education fund responsible for the PNAE.

19 Apart from their distribution to food social programmes, these stocks are also used in international food donations for humanitarian purposes.

20 According to BNDES's FINAME code, items considered by the programme must have 60 per cent in both weight and

value produced in Brazil, whether they are produced by Brazilian or foreign firms.

21 Ghana's METASIP plan is budgeted at US\$1 billion, of which US\$670 million is to be sourced abroad (Ministry of Food and Agriculture, Republic of Ghana 2010). Given that the costs of irrigation and mechanisation are estimated at US\$256 million (of which US\$110 million will come from foreign sources), Brazil's credit to Ghana will cover about 86.8 per cent of required foreign investment.

22 Kenya's credits are to be submitted to CAMEX during the second semester of 2012, while Senegal's should also be approved during this period, pending the settlement of previous debt engagements with Brazil. Due to the novelty of the programme, its financial and commercial dimensions are still being perfected. The Brazilian government is establishing mechanisms to streamline processes such as credit allocation and export guarantees to companies involved in the programme.

23 According to the OECD: 'Tied aid credits are official or officially supported Loans, credits or Associated Financing packages where procurement of the goods or services involved is limited to the donor country or to a group of countries which does not include substantially all developing countries' (OECD Glossary of Statistical Terms, <http://stats.oecd.org/glossary/detail.asp?ID=3089>).

24 Although a non-negligible part of these food imports (sugar, maize, wheat) comes from Brazil and should be substituted by locally grown food if the programme delivers on its promise, most Brazilian exports to Africa are for manufactured and semi-manufactured goods (US\$7.578 billion in 2011, with US\$4.571 billion in manufactured goods, and US\$3.007 billion in semi-manufactured goods) (Saraiva and Ciarelli 2012).

25 Northern cooperation trade-offs frequently include recipient country national budget funding in exchange for policy choices, such as structural adjustment programmes cutting back on social spending in the 1980s and 1990s; debt

relief for HIPC countries in exchange for poverty reduction strategy papers in the 2000s; and ‘good governance’ conditions, which can in theory be effective but in practice often end up setting politically or economically motivated double standards.

## 8 Thaler

1 This description has been used frequently in the case of Brazil. For one relatively early use, see Lopez and Kepp 1984.

2 The green revolution has been criticised, however, for improving agricultural production but maintaining and even exacerbating socioeconomic inequalities (Gonzalez 2004: 441).

3 Some critics prefer the term ‘agro-fuels’, as they feel it better highlights biofuels’ ‘problematic environmental and social consequences’ (McMichael 2010: 609).

4 The state of São Paulo had successful research programmes for coffee and cotton, but this was a rare exception (Graham et al. 1987: 3).

5 Mozambique is ranked by the World Bank as the eleventh most aid-dependent country in the world, with aid still responsible for over 20 per cent of gross national income (World Bank 2011b), and the country has long found itself beholden to the demands of donor countries, development agencies and banks after years of fighting for independence and to protect the country’s sovereignty from Rhodesian and South African interference (see also Plank 1993).

6 The 2010 riots led the government to reduce the magnitude of some price increases and cancel others. For further analysis of Mozambican development, one of the best and most persistent critics of the development model in Mozambique is Joseph Hanlon (for example, Hanlon and Smart 2008).

7 See Thaler 2010b for a brief critique of such mega-projects.

8 Despite the discussion of biofuel

production as a broad strategy for rural development, biofuel producers tend to cluster where infrastructure and market access are already well established (Schut et al. 2010), limiting the potential for large-scale biofuel investments to provide benefits to the most needy rural Mozambicans.

9 The fact that diplomats would mention specific companies as potential beneficiaries of their policies is symptomatic of the increasing influence of multinational corporations in Brazilian diplomacy (see Marques 2010).

## 11 Xiuli and Xiaoyun

1 The per capita requirement of 400 kilograms is a crude benchmark considered sufficient to meet the needs of the Chinese population, as well as the feed and seed requirements of farmers, given current food consumption patterns.

2 Based on the most recent complete information by country.

3 Note: data in value terms in this table are calculated at current prices. The new classification for the national industry has been implemented since 2003, and gross output values include services in support of agriculture, forestry, animal husbandry and fisheries.

4 In Chinese parlance, ‘basic’ means the provision of at least 95 per cent of China’s basic food (i.e. grain) needs from domestic sources.

## 12 Cheru and Modi

1 Food and Agriculture Organization of the United Nations (2012) *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security*, Rome: FAO; United Nations Human Rights Council (2010) *Report of the Special Rapporteur on the right to food, Olivier De Schutter: Large-scale land acquisition and leases: A set of minimum principles and measures to address the human rights challenge*, A/HRC/13/33.

## About the contributors

*Alexandra Arkhangelskaya* – head of the Centre for Information and International Relations at the Institute for African Studies, Russian Academy of Sciences, Moscow.

*Simon Freemantle* – senior analyst in the African Political Economy Unit with Standard Bank Research, South Africa.

*Albert Khamatshin* – researcher at the Centre for Southern African Studies at the Institute for African Studies, Russian Academy of Sciences, Moscow.

*Sam Moyo* – professor executive director of the African Institute for Agrarian Studies (AIAS), Harare, Zimbabwe, and a former president of the Council for the Development of Social Science Research in Africa (CODESRIA) (2008–11).

*Sanusha Naidu* – senior researcher at the Open Society Foundation for South Africa (OSF-SA) South African Foreign Policy Initiative (SAFPI) in Cape Town, South Africa.

*Thomas Cooper Patriota* – Food and Agriculture Organization of the United Nations (FAO) consultant at the Ministry of Agrarian Development's International and Commercial Promotion Advisory, Government of Brazil, Brasília.

*Francesco Maria Pierri* – head of the International and Commercial Promotion Advisory at the Ministry of

Agrarian Development, Government of Brazil, Brasília. He has previously been a consultant for the Centre for Agrarian Studies and Rural Development of the Ministry of Agrarian Development.

*Dessalegn Rahmato* – founder and senior researcher at the Forum for Social Studies, an independent policy research institution in Addis Ababa, Ethiopia. He is the winner of the 1999 Prince Claus Award in recognition of significant achievements in the field of research and development.

*Rick Rowden* – doctoral candidate in economics at the Jawaharlal Nehru University in New Delhi, India. He works as a freelance consultant to the international affairs industry and has previously worked as inter-regional adviser with the United Nations Conference on Trade and Development (UNCTAD) and senior policy analyst with ActionAid USA.

*Gurjit Singh* – ambassador of India to the Republic of Indonesia. He recently served as the ambassador of India to Ethiopia and Djibouti and as the representative of India to the African Union. He has been head of the Africa Division twice in the Ministry of External Affairs (MEA). He was also the sherpa for the Second India–Africa Forum Summit held in Addis Ababa, Ethiopia, in May 2011.

*Jeremy Stevens* – international econo-

mist for the Standard Bank Group, Beijing, China.

*Kai Thaler* – doctoral candidate in the Department of Government at Harvard University, United States, and an affiliated researcher of the Portuguese Institute of International Relations and Security (IPRIS), Lisbon, Portugal.

*Xiaoyun Li* – professor and dean of the College of Humanities and Development Studies, China Agricultural University, Beijing, China.

*Xiuli Xu* – associate professor at the College of Humanities and Development Studies, China Agricultural University, Beijing, China.

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