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Smallholder engagement with the private sector

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Abbreviations

AECF	African Enterprise Challenge Fund
AGRA	Alliance for a Green Revolution in Africa
AKL	Afro Kai limited, a trading company in Uganda
BoP	Bottom of Pyramid, constituted by those on low incomes — perhaps US$2.50 a day per person or less. It is estimated that as many as four billion persons may have incomes this low
BSOC	Blue Skies Organic Cooperative (Ghana)
CARE	An international group of NGOs, formed from the original Committee for American Relief Everywhere
FAO	Food and Agriculture Organization of the United Nations
FDT	Financial Deepening Trust (Kenya)
FRICH	Food Retail Industry Challenge Fund
GAP	Good Agricultural Practice — as in Global GAP, a private standard for supplying European supermarkets
KHCP	Kenya Horticulture Competitiveness Project
LIC	Low-income countries
NGO	Non-governmental organisation
PPP	Public—Private Partnership
SAARI	Serere Animal and Agricultural Research Institute, Soroti, Uganda — part of the national agricultural research system
SAGCOT	Southern Agricultural Growth Corridor of Tanzania

Executive summary

This Guide concerns smallholder farmers and their engagement with markets in Africa. It looks at their degree of engagement as well as the possibilities to link them to formal firms in ways that may improve access to capital, inputs, know-how and markets.

Smallholder farmers and development

In low-income countries (LICs) smallholders are often one of the largest, if not the largest, occupational group. Yet poverty amongst them is often disproportionately high. While it is expected that with economic growth agriculture will decline in relative importance, the sector needs to grow to provide food and raw materials and to export surpluses. Above all, productivity needs to rise to allow labour and capital to be released for investment in other sectors. Hence finding ways to develop smallholder farming is often a priority in LICs both for welfare and developmental reasons.

Smallholders may produce for their own subsistence, but most deal with markets, buying in inputs and selling produce — albeit in small amounts. Some also hire in labour, rent and buy land, and obtain formal finance from markets. Up until the 1980s smallholders producing cash crops in Africa often were linked to marketing boards that bought up surpluses and usually provided seed, fertiliser and other inputs on credit. Most of the boards cut back their functions as a result of economic reforms of the 1980s and 1990s, leaving farmers dependent on the market for inputs, sales and financial services. A frequent observation, however, is that smallholders make less use of input markets than they might and hence fail to achieve the yields possible through use of existing technology.

Agriculture in Africa has been growing faster in the 1990s and 2000s than before. Conditions for farmers have improved in the 2000s. Governments are much less likely than in the past to tax farmers heavily and otherwise discourage private investment and innovation. They have promised to increase public investment to support agriculture. Donors, too, have shown renewed interest in the sector.

Above all, demand for agricultural output is rising in domestic and regional markets as economies grow and urbanisation increases, while marked increases in international prices of many agricultural products since 2007/08 offer better rewards to exporters. For some high-value products for domestic and export markets, supply chains are changing as supermarkets, processors and exporters seek produce of consistent and high quality. Conditions may be demanding, but often premium prices are on offer. Private capital has been attracted back to agriculture by these opportunities, resulting in the much-publicised land deals and less visible investments in supply chains.

This Guide concerns how policy-makers can stimulate smallholder agricultural development to take advantage of the opportunities and overcome the failings of rural markets. In particular, how can smallholders be better linked to formal private firms that have the capital and know-how — above all in supply chain logistics — that farmers lack.

Organising framework

Three related perspectives may be used to frame thinking about the issues, as follows:

- ***Agricultural development policy.*** History shows two sets of factors to be basic requirements for growth. One is an ***enabling rural investment climate***, consisting of peace and order; macro-economic stability with inflation contained and a competitive exchange rate; predictable and modest taxation, with taxes reinvested in public goods; and the establishment of economic institutions, above all property rights. The investment climate does not need to be perfect, but it needs to avoid gross disincentives to investment and innovation.

Investing in ***rural public goods*** is the other factor: physical infrastructure (rural roads, electricity, perhaps large-scale irrigation and drainage where applicable), provision of services to people that enhance their capabilities (education, health, and clean water and sanitation), and technical improvements derived from agricultural research and transmitted through extension. Evidence from Asia shows that investing in public goods pays off handsomely: the green revolution saw heavy spending by Asian governments, particularly on roads, irrigation, research and extension.

- ***Rural market failures.*** One reason that smallholders buy few inputs and obtain so little formal credit is that markets work only when participants have the information necessary to make deals. Hence when input dealers can only guess at farmers' demand for seed and fertiliser, when bankers or insurance companies know little of the competence and character of farmers, the costs of getting the information necessary to do business — 'transactions costs' — rise, push the supply curve upwards, thereby raising prices and reducing use of inputs, credit and insurance. Investments in the supply chain are similarly deterred when neither processors nor farmers know enough to trust one another.

  Poor households probably suffer more from market failures than others. The poor and disadvantaged are most likely to face high transactions costs when dealing with banks, input suppliers and traders; they are most likely to be exploited by monopoly power, since they have few options to circumvent monopolistic intermediaries; they are least likely to have secure rights to the land, water and forests they use. Women farmers often suffer disproportionately as well, since their rights to land are often less well established than those of men, while they often suffer in market deals for lack of education, language, social ties, information, and prejudice against women; and,
- ***Business view: high start-up costs and learning thresholds.*** First-time investors in new circumstances face high initial costs. Infrastructure may be inadequate, with access roads, power and water supplies prominent needs. When inputs are little used, their unit costs may be high — owing in part to the high transactions costs outlined above. Staff may need training. Banks with little experience of financing farming or the food supply chains may limit credit, or provide it only when backed by highly demanding levels of collateral. Risks are high as well: not only are there those of the weather and the market, but investments often require learning new production methods. Once long-term investments are made — in effect 'sunk' — and once the new business has been learned, operating costs can be much lower, making the business viable. Public support for private investment may be justified by the benefits of learning that arise with new skills or innovative arrangements that facilitate business, as well as by the public good nature of some of the physical infrastructure such as roads or power supplies that may be necessary for greenfield.

These three sets of related insights combine to produce a set of reasons for public policy and investment to stimulate private investment and innovations, that apply at the macro level of the overall economy; the intermediate or meso level of particular markets and regions within countries; and the micro level of particular investments and projects. Table A sets out the reasons and typical public responses, with examples.

Table A. Public action to promote private sector development in African smallholder agriculture

Reason	Public action [specific examples mentioned in this Guide appear in *italicised bold*]
MACRO Public role: • Enabling rural investment climate	Enhance investment climate: • Peace and stability • Macro-economics: low inflation; competitive exchange rate; modest interest rates • Regulations: reduced red tape, especially at borders [trade facilitation] ***Doing business indicators*** to measure progress; ***Benchmarking agriculture [World Bank]; TradeMark East Africa*** Establish, or underwrite existing, basic economic institutions (property rights, collective action, risk, etc.). Examples: • Land registration • Contract recognition — e.g. warehouse receipts • Micro-insurance
MESO Public role: • Rural public goods	Invest in physical infrastructure Public-private partnerships ***SAGCOT***
Market failures: information, imperfect information, thresholds, externalities	Mitigate rural market failures, especially in agricultural inputs and rural finance Encourage innovative arrangements that reduce transactions costs ***Financial Deepening Trust, Kenya*** Contracting ***Illovo sugar, Malawi; Eagle Lager, Uganda; Blue Skies, Ghana*** Group farmers together in associations and co-operatives to economise on transactions costs Local agents ***Dunavant cotton, Zambia; Agency banking: Financial Deepening Trust, Kenya***
Specific issues surrounding individual investments *MICRO*	
Uncertainties, risks and short time preferences of private individuals and firms	Reduce risks — underwrite potential downsides • Micro insurance, indexed weather insurance for farmers ***Financial Deepening Trust, Kenya*** • Loan guarantees for banks ***Century Bank, Uganda***
High initial costs of physical infrastructure, of trial and error in improved techniques and arrangements, where they may well create external benefits and public goods Thresholds of activity that may trap individual actions at low level equilibria to achieve economies of scale and scope	Stimulate investment: ensure that potentially profitable opportunities get the capital they need Lever in private finance through public counterpart investment: grants, soft credit, development debt, commercial debt, equity • Patient capital ***Chiansi irrigation, Zambia*** • Challenge fund grants ***AECF; FRICH*** Assist small-scale farmers to meet standards and otherwise engage with larger-scale actors in the supply chains • Certification for Global GAP ***Freshmark Kenya*** • Certification for Fairtrade or organic ***Blue Skies, Ghana; Kasinthula sugar outgrowers, Malawi***

Reason	Public action [specific examples mentioned in this Guide appear in *italicised bold*]
Social and development goals	
Reduction of poverty and hunger; Equity by social group, gender, region	Raise development and social impact from business investments by • focusing public and public-private action on sectors, regions, scale of enterprise; • giving poor and vulnerable assets; or by • bringing excluded people into markets through forms of empowerment such as associations Encourage private sector corporate social responsibility or philanthropy — demonstrated engagement with public concerns, social responsibility
Environmental sustainability	[Not covered in this Guide]

Experiences and lessons

Across Africa in the last ten years or so hundreds, if not thousands, of cases of public and formal private initiatives to link smallholders to formal private firms can be identified. Below the level of national strategies, plans, policies and public investments — topics largely beyond the scope of this Guide, a plethora of activities have taken place at meso and micro levels, the result of initiatives by actors both private — farmers, farmer associations, firms — and public — governments, donors, non-governmental organisation (NGOs) and foundations.

Rural public goods can be costly, if necessary, investments. Given the low levels of investment in physical infrastructure in much of rural Africa over the last few decades, there has been interest in using ***public-private partnerships (PPP)*** to increase capital and bring in know-how that may lead to efficiency gains in construction and maintenance. The scope for such partnerships may be limited, partly owing to some investments such as rural access roads not yielding an income stream, and partly since governments need much skill to arrange such deals so they save public funds and still provide an incentive for private participation. Successful examples are hard to find.

Many initiatives that specifically try to engage smallholders with formal private firms try to reduce transactions costs between the parties. At least four ways to reduce such costs can be seen, as follows:

- ***Contracting:*** the formal firm, a supermarket, processor or exporter, contracts smallholders to grow produce, often linking the marketing deal to advances of inputs and technical assistance. Contracts can be verbal or written, and can cover a range of services. Recent reviews of contracting in Africa conclude that successful contracting depends on three factors: a good business opportunity that neither party can take without co-operation of the other — hence contracts tend to be for higher-value produce; mutual commitment to the contract, with growers unable to sell on the side, and buyers unable to source produce other than through contracting; and, a reasonably stable market so that contracted prices do not deviate far from a spot price. These are quite restrictive conditions, which may explain why contracting is not that common, other than for processed cash crops such as sugar cane.
- ***Grouping smallholders*** can reduce transactions costs between them and formal processors, traders and service providers in supply chains. If groups are to function well, however, they cannot be too large; members need to select others they trust — so they may not be socially inclusive; and, at least initially, they need to focus on a few straightforward activities — rather than trying to take on multiple activities that may prove too difficult to manage.

- An alternative to groups is to use ***local agents*** drawn from the farmers as point of contact to smallholders, who can use their local knowledge to reduce transactions costs. Such agents may be used to distribute inputs on credit, as applies to cotton in Zambia, or to provide some bank facilities as seen in Indonesia and being tried in Kenya; and, more generally,
- ***Underwriting development of markets*** largely absent in rural areas, above all those for financial services. For example, loan guarantees may be used to encourage banks to serve smallholders, or to develop mobile banking services such as the M-Pesa money transfers. Innovations are being seen in micro-insurance, above all the potential of indexing pay-outs in crop and livestock insurance to weather rather than to actual individual losses. Some agencies have trained farm input dealers in use of fertilisers and other products, and provided guarantees on inventory credit.

Some specific agricultural investments face high threshold costs in risks, high costs of physical infrastructure that once in place may serve for decades in the future — well beyond commercial investment horizons, and learning when innovating. These may deter commercial investors, yet there are public benefits to such investments. Ways for public support to encourage private investment in such cases include:

- ***Grants*** to private companies, often matched to the level of private investment. The level and form of grant may be defined through:
    - ***challenge funds***, where private firms submit applications for public grants to support investments where there is some added value; or through
    - ***'pull funds'***, where a prize is awarded for companies that generate advances in specified fields, usually where a technical break-through is the mutual aim;
- ***Patient capital***, where a public agency takes equity in return for finance, but with concessional terms for reward of that equity; and,
- ***Concessional loans*** at low rates of interest or with long grace periods.

Expectations should not, however, be overstated. Risks for commercial investors can be substantial, while returns to pioneers may be competed away by imitators. The scope for 'impact investment', that meant to work with poor people, can be exaggerated.

Certifying standards and production conditions may constitute another threshold for smallholders growing high-value produce for European supermarkets, above all fish, flowers, fruit and vegetables, since the costs for each farm can be high for small-scale operations. In some cases exporters may be prepared to help their smallholder growers to meet these costs; something that may be assisted by challenge funds.

Lessons for policy makers and donors

Key messages concern: the rationale for public support to the private sector; the importance of processes; and, growth and development in general.

Reasons for public support

It is important ***to be clear why public support may be necessary*** to encourage private investment and innovation in agriculture. Market failures justify a public response: especially when parties do not have the information — and experience — necessary to invest without undue risk. Those risks are often especially high to first movers and innovators. Public action may also be justified when private actions have external benefits not captured by the investor, or create (to some extent) public goods — such as a road or bridge that can be used by others as well as the investor.

Government failures and omissions may also justify public support to private enterprise, although it would be preferable to rectify those failures and omissions rather than working with private enterprise to paper over the cracks.

A good principle is to ***work as far up the hierarchy of issues as possible:*** that is, when possible address national conditions rather than individual projects. This economises on resources, while ensuring that systemic problems that apply across the economy or agriculture as a whole get the attention they deserve.

Public investments and other support directly to specific enterprises raise ***questions about additionality*** — is the public support necessary to elicit private action? — not to mention the danger of giving private firms taxpayers' money as an undeserved subsidy. Conceptually, there are socially valuable private investments that would not be made without public support — for reasons already stated. Concepts are fine, but ***assessing individual projects requires information and expertise***. It helps if there is clear understanding of the rationale for support. This may be supported by specific indicators for public returns to private investment. Information is crucial. Here the private firm has a great advantage over the public manager: the firm usually has the best estimates of costs and returns — information that it can take much time and effort for a public assessor to verify. Challenge funds can make such assessment clearer and transparent; putting the onus for justifying support on the private firm. This does not, however, avoid public managers having to make their own judgments.

Processes: no short cuts for success

Public-sector managers need expertise and experience to assess, manage and monitor, when undertaking initiatives to link smallholders to formal firms. Theory helps, as do some tools — including agricultural gross margins, cost-benefit analysis, value chain analysis, business accounts; but above all in practice they need experience, since principles often have to be adapted to the demands of second-best reality.

Circumstances matter: what works in one place may not work in another, apparently similar, setting — and especially so for agriculture that has to adapt to local natural and human resources. When context matters so much, individual cases need careful assessment.

Most successful interventions result from processes: few can be designed as blueprints. Learning not only makes for success, but also the experience of learning can be a critical development outcome for some actors such as leading smallholders, leaders of farmer associations, small-scale business owners such as input dealers. Learning, however, only takes place if time is taken to monitor events and to reflect on them, and if there is the time and capacity to react accordingly. Public programmes need to recognise the value of loose-coupled management that allows learning. Efficiency is not the first aim here: effectiveness is what matters.

Monitoring and evaluation are critical to learning. Although obvious, routinely private sector engagements are imperfectly monitored, let alone rigorously evaluated. Clear understanding of what impacts are expected helps. It would be good to establish an evaluation framework at the outset that would allow subsequent evaluations to be rigorous: at very least, surveying affected smallholders and a control group before and after that might allow difference-in-differences to be assessed.

From private sector development to growth, development and poverty reduction

How much can private sector development with smallholder farmers contribute to growth, development, and poverty reduction? Experience shows that when formal firms link to smallholders, they will work first and foremost with those smallholders who have better-than-average assets — land, labour, skills and capital — and are located in better-than-average areas for natural resources and access to markets. This is to be expected: without assets and access to market it is hardly possible to produce and sell commercial

surpluses. For those managing formal firms the incentive will be to work with the larger amongst the smallholders to economise on transactions.

It is not just formal firms which may choose to work with the more advantaged smallholders. Marginal farmers may be excluded when groups of farmers are formed, since their peers in the village may leave them out deliberately for perceived lack of capability. This is particularly likely to apply when the group is jointly liable for delivering produce or repaying loans.

Hence direct links from formal firms may at most reach no more than a small proportion of all smallholder households. It would fly in the face of all reasonable expectations to pretend otherwise. Those who see multiple wins and bottom lines as automatically coming from commercial development overstate their case.

This does not, however, mean that development impact will be limited. ***Indirect benefits*** for the rest of the rural population often arise through multipliers in rural economies. It is likely that smallholder development will create widespread benefits by creating additional jobs on farms — horticulture and dairying, for example, have high demands for labour; in supply chains where processing plants often employ many workers; and in meeting increased demand for locally-provided goods and services from smallholders with higher incomes.

Government does not necessarily have to do much to stimulate such links, since the main encouragements to private investment in agricultural supply chains and beyond are an enabling rural investment climate and rural public goods that need to be in place for agricultural and rural development in general.

Beyond this, there may be ***ways that government can make smallholder development more inclusive of marginal farmers***, by giving them assets that allow them to participate in business opportunities — for example, land, credit or education and training. Government may also help those excluded from participating in markets by forming collectives that both increase bargaining power and reduce transaction costs. Finally, some households cannot participate in the benefits of private sector development either directly or indirectly since they do not have workers — owing to youth, old age, disability or chronic sickness. For them, social protection will be needed.

1 Introduction

The question of how to link formal firms, with capital, know-how and contacts, to smallholders for growth and development has become increasingly important. Rising interest in investing in agriculture, growing awareness of the possibilities of stimulating private sector development, and the preponderance of smallholders in the populations of LICs in general, and in Africa in particular, make this question ever more pertinent.

This Guide looks at what is known about smallholders and their engagement with markets in Africa, and what possibilities to link them to formal firms exist.

To begin, a few key terms that define the actors considered.

- By ***smallholders*** we refer to family-operated farms that are small in scale. There is no single definition of 'small-scale'; although a useful working definition is a farm that can be operated largely by the household unit and that contracts in labour only for peak operations. By this criterion, most farms in the world — including in the UK — are 'small-scale'. And so indeed they are, when compared to the scales typically seen in manufacturing, where most products come from factories with tens if not thousands of workers.
  The area of the farm is often taken as the criterion. The Food and Agriculture Organization of the United Nations (FAO) proposes a threshold of two hectares of land, but this needs to be adjusted according to land quality, irrigation, and the possibilities of mechanisation. In most countries in Africa three-quarters or more of holdings would be of two or fewer hectares.
- ***Private sector*** broadly defined includes all enterprises, whatever their size and formal status. This thus includes smallholdings. But for this Guide a more restrictive definition is used — that of formally established firms. Most of these operate at scales of employees and capital far greater than those of smallholdings: many operate over large territories, some are international.
- ***Public sector*** is here defined narrowly as government agencies — of both developing countries and partner governments and officially-recognised multi-lateral organisations of the United Nations (UN) system that provide development assistance. [A broader definition might also include not-for-profit organisations with public service aims, such as development NGOs and charitable foundations.]

The Guide is structured as follows.

- Section Two looks at what is known about smallholders and their engagement with markets in Africa, and those opportunities and circumstances that have redefined the landscape since the start of the new century.
- Section Three sets out a framework for organising thinking about the issues, drawing on thinking about agricultural growth, rural market failures, and business perspectives on conditions for investment in rural Africa. The framework is built around potential policies and investments for stimulating agricultural development.
- Section Four uses the framework to set out what is known about the different types of public intervention to stimulate formal private engagement with smallholders.
- Finally, Section Five draws out the major lessons for public policy-makers, arranged under the headings of the rationales for public support, the importance of processes, and how far private sector development can take us towards development goals.

2 Smallholder farmers and development

2.1 Smallholder development and markets in Africa

In LICs, and especially in Africa, the majority of households are rural and work for much of the time in agriculture, often on the fields and pastures to which the family has access. Their welfare is a particular concern, since poverty and hunger tend be more prevalent in rural areas than urban.

When economies grow and incomes rise a structural transition takes place, in which agriculture's share of the economy declines relative to industry and services and increasingly people live in urban areas. That has already been seen in the emerging economies of Asia and Latin America. LICs, however, have still to reach the point where more than half the population lives in urban areas and works in sectors other than agriculture, let alone the threshold where the numbers working in farming decline absolutely. Indeed, for Africa south of the Sahara it is expected that one-third of the new jobs to be created from 2010 to 2020 will be on the land, with another 30—40 million people added to the agricultural work force by 2020 (Fox et al., 2013). Smallholder farming may not be so important in the future, but for the time being finding ways to improve the livelihoods of those who work on the land remains a priority in most LICs.

While a primary objective for most households with small-scale farms is to produce staple crops for subsistence, the great majority engage with the market, selling at least some of their produce and buying in some of their inputs — tools, seed, fertiliser, agro-chemicals, veterinary medicines, etc. Beyond the village lie sources of better livelihoods for farmers: improved technology embodied in the inputs mentioned as well as machinery, irrigation equipment, and technical advice; credit to finance investment and innovation on the farm; and markets for surplus produce. Hence when farmers link to input suppliers, banks, processors, traders and exporters they can benefit. This has long been the case. When European traders and colonialists arrived in Africa in the second half of the nineteenth century, this time for commerce and enterprise rather than to take slaves, some West African farmers seized their opportunities to sell palm oil, groundnuts and cocoa to European trading houses. Commodity booms occurred as a vent for surplus production capacity was created — booms that were often led and financed by enterprising farmers amongst the indigenous population (Berry, 1993; Hill, 1986; Jerven, 2010; Tosh, 1980).

Later, in the first half of the twentieth century, colonial authorities sought to extend export farming through establishing marketing boards to regulate quality and to stimulate production through organisation of marketing and by funding public research stations and extension. In some cases they also arranged delivery of inputs and other services to farmers. Increasingly these same public organisations were used for food crops as well, especially from the 1950s onwards. By the 1970s, however, many of these were manifestly failing in their development functions: they had become instruments by which the state could tax farmers by deducting levies and cesses from payments; but worse, many were badly managed, running up very high costs of operations so that they either incurred heavy debts with the central bank, or paid a small share of the market price to farmers, or a combination of both these things (see Ellis (1983) for a graphic account of the failings of Tanzania's National Milling Corporation).

Structural adjustment programmes that were introduced in Africa from the early 1980s onwards often included reform or abolition of public agricultural marketing agencies, so that by the mid-1990s most had either disappeared or had their remits heavily pruned. For the most part, Africa's smallholders were to be linked to the market through private actors: traders, processors and exporters. Results have been mixed. In some cases, prices to farmers have risen notably as private traders with more efficient logistics have

competed to buy crops from farmers (for the case of coffee in Kilimanjaro, Tanzania, see Winter-Nelson and Temu, 2002). Root and branch reform of Ghana's Cocoa Board (Cocobod), which allowed the parastatal to survive, led to significant increases in the share of the world cocoa price paid to cocoa growers in southern Ghana (Kolavalli and Vigneri, 2011).

In other cases, however, farmers have been left to markets that have functioned poorly if at all. Owing to the market failures that will be discussed in detail in the next section, they have lost access to credit, inputs such as seed and fertiliser have been available only in district centres and at high cost, and in some supply chains control over quality of produce has collapsed so that prices have fallen to reflect the low and indiscriminate quality offered to traders. Hopes that liberalisation of agricultural markets would stimulate farming in rural Africa were often dashed owing to the reluctance of traders to offer the same services that public agencies did in the past (Diao et al., 2013; Dorward et al., 1998). Hence there are repeated reports that farmers do not take up the opportunities that market links might provide, since they cannot make use of innovations as they lack the means to invest in them. Gaps between the yields that farmers achieve on their fields and what can be grown on test plots in the same village by researchers remain large (Nin-Pratt et al., 2011).

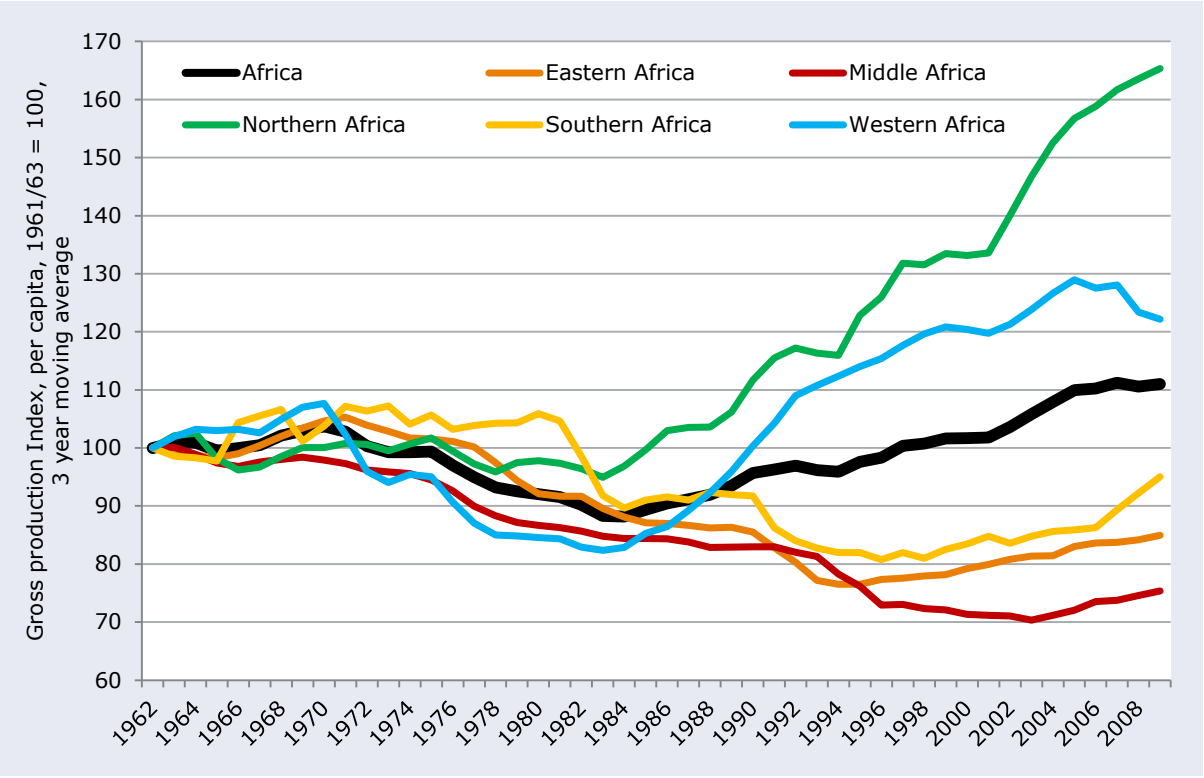
2.2 Contemporary opportunities

The shortcomings of agricultural development in Africa in recent decades have been frequently rehearsed: growth of output has been slow, and slower still has been growth of productivity — whether measured by yields per hectare or the value added of the farm labour force. But it would be an exaggeration to imagine that agriculture has been stagnant. For Africa as whole, the value of agricultural production per person fell from the early 1960s to the early 1980s, but has subsequently grown again so that by 2009/11 the index was just over 10% more than fifty years earlier (Figure 1). Regional differences are pronounced: North and West Africa have seen faster agricultural growth than elsewhere. Across Africa, the statistics suggest that the turning point from falling to rising output per capita varies from the early 1980s for West and North Africa to a decade or more later for other regions. This suggests that while economic liberalisation may not have led to rapid growth, it has been associated with faster growth than previously.

The 2000s have seen conditions change for African farmers, mostly for the better. Governments are much less likely than in the past to tax farmers heavily and otherwise discourage private investment and innovation. They have also promised to increase public investment in the sector, with a target of 10% of all government spending adopted as part of the declaration made by ministers of agriculture in Maputo in 2003. Few countries may have reached that level, but most have raised public investment. The Comprehensive Africa Agricultural Development Programme (CAADP) has been taken up as a framework for co-ordinating the renewed drive for agricultural growth. Donors, too, have shown renewed interest in agriculture after two decades starting in the early 1980s of falling fractions of aid being allocated to the sector.

Demand for agricultural output is rising in domestic, regional and international markets, with marked increases in the international prices of many agricultural products since 2007/08. Markets within Africa are expected to grow particularly quickly given the revival of economic growth seen in the 2000s (Radelet, 2010) and associated urbanisation.

Figure 1: Africa, gross agricultural production per capita, 1961/63 to 2009/11



Source: Compiled from FAOSTAT data on gross production indices. These value the different products at their prices in the early 2000s, so that growth reflects physical output and is unaffected by changes in prices. Regions are those defined by the UN.

Agricultural supply chains may not be changing as rapidly as in other parts of the developing world, but nevertheless formal, relatively large-scale and capitalised firms are increasingly seen in agricultural supply chains. These include supermarkets, exporters of non-traditional, high-value produce, and processors for the domestic market. Most of them demand higher and more consistent quality of produce, in large lots delivered to precise schedules, and in some cases with requirements for documentation and certification of production practice. Most smallholders in Africa are not connected to these actors, but those that produce higher-value produce for middle class consumers either in Africa or in Europe are increasingly likely to be. The demands placed on farmers may be exacting, but these are usually more than compensated by the premium prices on offer.

More private capital is potentially available for both farming and the supply chains as investors both outside and within Africa recognise the opportunities presented by the growing markets, and especially those for higher-value items. This has produced the much remarked upon land deals of private investors seeking large-scale holdings (von Braun and Meinzen-Dick, 2009), but also evidence of more activity in the supply chains as traders both informal and formal look to obtain supplies of the higher-value produce demanded in the cities.

In this context, policy-makers have looked once again to accelerate agricultural growth. In the 1950s and 1960s this would have meant public support through the old commodity boards, or in the 1970s concerted and co-ordinated public schemes to address comprehensively agricultural and rural development through the integrated schemes popular at the time. The 1980s and 1990s saw public engagement with agriculture stripped back to allow liberalised markets to co-ordinate production and investment. If there were social imperatives to work with smallholders on low incomes, they were largely seen as something that NGOs would address. Since the early 2000s there has been recognition that more concerted public action is needed to ensure that

sufficient public goods are present to support and attract private initiative, and to overcome the market failures — largely in rural markets for farm inputs and finance services — that hamper investment.

For most donors and governments there is no intention to return to the heavy state direction seen in the past. The contemporary agenda seeks to work with private parties, both farmers and those in the supply chains. It is in this context that the question arises of how better to link smallholders to formal private firms that have the capital and know-how — above all in supply chain logistics — that farmers lack. Moreover, there is the hope that with the right kind of steering private enterprises can contribute not only to greater output and productivity on small farms, but also generate development gains in incomes and jobs for rural people on low incomes or in outright poverty.

Much activity is being seen, some the direct initiative of formal firms, some convened by NGOs — especially those with experience and competence in value chain development — and some promoted by governments, donors and development foundations. Indeed, any survey of this field (Wiggins and Keats (2013) summarises both our review and those of others) reveals a great variety of practical and pragmatic action which prompts questions as to what is working, under what conditions, and with what results.

3 Organising framework

Three related perspectives may be used to frame the thinking about the issues: from studies of agricultural development policy, ideas about the primacy of different factors for agricultural growth; from economics, the idea of market failures that warrant correction by the state; and from business studies and practice, thresholds of information and learning.

3.1 Factors driving agricultural growth

In the last fifty years of studies of agricultural development, two sets of factors repeatedly feature as basic requirements for growth. One is an ***enabling rural investment climate***. This can be seen as a combination of: peace and order; macro-economic stability with inflation contained and a competitive exchange rate; predictable and modest taxation, with tax reinvested in public goods; and the establishment or recognition of basic institutions, above all property rights that are respected (Poulton et al., 2008).

The importance of a favourable climate can be seen most clearly in the breach. In the 1970s many African farm sectors suffered from 'negative protection', that is economic conditions that effectively led to heavy taxation of farmers. Part of this came from explicit taxes, above all on export crops, but most of the cost came from overvalued exchange rates that penalised producers of tradable goods, and from heavy protection of domestic industry that resulted in high costs for industrial inputs and consumer goods (Krueger et al., 1991). Taxation, both explicit and implicit, was often much worse for export crops. For example, Ghana's cocoa was effectively taxed at 80% or more between 1976 and 1979. With little incentive to produce, cocoa production in Ghana slumped, while farmers who could smuggle their beans out through neighbouring Côte d'Ivoire and Togo did so.

When African agriculture grew more slowly than population in the 1970s, it was at a time when the implicit taxation of farmers was high. The turn-around (see Figure 1), corresponds to a reduction of this burden on farmers.

The other factor is the often high returns to government investment in ***rural public goods*** — that is, goods that would not be provided adequately by private firms, largely since they would find it difficult to recover their costs. These include physical infrastructure (rural roads, electricity, perhaps large-scale irrigation and drainage where applicable), provision of services to people that enhance their capabilities (education, health, and clean water and sanitation), and technical improvements derived from agricultural research and transmitted through extension.

Evidence from Asia shows that investing in public goods pays off handsomely: the green revolution saw heavy spending by Asian governments, particularly on roads, irrigation, research and extension (Fan et al., 2000; Fan et al., 2007). Transport is an especially critical factor for farmers. High transport costs reduce prices paid to farmers for their output at the farm gate, while raising the cost of external inputs such as fertiliser when delivered locally. For Rwanda's coffee farmers, transport costs from farm-gate to the port of Mombasa are estimated to take 80% of the producer price, with costs of transporting from farm to Kigali at 40% of the farmer price. Modelling shows that halving transport costs could push up farm prices by 20%, thereby reducing the incidence of poverty by 6%. Furthermore, the poor would benefit more from lower transport costs than the richer rural households (Diop et al., 2005).

Ensuring an enabling environment for rural investment and investment in rural public goods may not always be sufficient for growth — although the cases of China since the reforms of 1978 and Ghana since 1983 show that they can be — but in their absence

private farms and firms will be both deterred from investing and will not realise good returns to whatever they do invest.

3.2 Rural market failures

Given an enabling investment climate and public goods, then the next obstacle to investment arises with rural market failures. Few smallholders in Africa use external inputs on their crops and animals to the extent merited by the benefits compared to the costs; very few smallholders have access to formal financial services, even for seasonal credit let alone longer-term investment credit.

The reasons for this frequent observation are debated (Udry, 2010). It may be, for example, that erratic and unexpected changes in government policy can make agricultural investments risky (Jayne et al., 2002), as can fears that profits may be expropriated by state officials or local political leaders if investments pay off. Looking at grain markets in eastern and southern Africa, Jayne et al. (2002) argue that lack of investment in grain production, transport and storage has been the consequence of policy instability — as seen, for example in export bans or the announcement of public imports of grain that are then delayed or much reduced from the quantities announced.

In some cases it may be that apparent under-investment merely reflects real costs and risks that are not always immediately apparent to the observer. For example, technical improvements may not be as appropriate to field conditions as agronomists believe, the economic returns may not justify the added investment, and the risks of a poor harvest owing to bad weather may be too high to bear. Credit may not be used since interest rates are high — as may apply when treasury bills pay handsome returns to bank assets.

A third and compelling case can be made for market failures. Markets work only when participants have the information necessary to make deals and investments. Hence when input dealers can only guess at farmers' demand for seed and fertiliser, when bankers or insurance companies know little of the competence and character of farmers, the costs of getting the information necessary to do business — 'transactions costs' — rise, push the supply curve upwards, thereby raising prices and reducing use of inputs, credit and insurance. These failures may be so severe as to constitute poverty traps: if small farmers are too poor to afford inputs needed to increase their production, and cannot obtain credit to overcome their lack of liquidity, then they cannot raise production, and hence remain poor, even when the technical means to produce and earn more are known (Sachs et al., 2004; CPRC, 2008).

Similar problems may arise with investments in agricultural supply chains. Processors, wholesalers and retailers will invest in processing plants and storage only if they can be sure they can obtain supplies from farmers, and farmers will produce surpluses only if they can be sure that these will be bought — with both parties needing reassurance that prices will not be turned against them as one side or other uses market power to extract a rent. Such assurances can be difficult to create when would-be investors know little about farmers, and when the farmers for their part know little about the potential investors. These co-ordination failures could thus significantly depress investment in agricultural supply chains (Kydd, 2002; Poulton et al., 2006).

Another frequently alleged market failure is that of monopoly power of local traders, input dealers and informal lenders who can extract rents from lack of competition in the market. Barrett (2008), for example, reviewing the participation of small farmers in markets in eastern and southern Africa, found reports of imperfect competition from Ethiopia and Madagascar, although he comments how little formal testing this hypothesis has received.

Poor households probably suffer more from market failures than others. The poor and disadvantaged are most likely to face high transactions costs when dealing with banks, input suppliers and traders; they are most likely to be exploited by monopoly power,

since they have few options to circumvent monopolistic intermediaries; they are least likely to have secure rights to the land, water and forests they use. Women farmers often suffer disproportionately as well, since their rights to land are often less well established than those of men, while they often suffer in market deals for lack of education, language, social ties, information, and prejudice against women.

3.3 Business perspectives: high costs of starting up enterprises in rural areas of low-income countries

First time investors in new circumstances face high initial costs. Infrastructure may be inadequate, with access roads, power and water supplies prominent needs. When inputs are little used, their unit costs may be high — owing in part to the high transactions costs outlined above. Staff may need training. Banks with little experience of financing farming or the food supply chains may limit credit, or provide it only when backed by highly demanding levels of collateral. Risks are high as well: not only are there those of the weather and the market, but investments often require learning of new production methods (Palmer, 2010a).

Hence there can be high start-up costs that apply to agricultural investment, especially for outsider investors with limited local knowledge. Yet many of the costs are one-offs, such as infrastructure, training, or learning new methods, while with increased activity it is likely that costs of inputs and financial services will fall as transaction costs of information decline with more familiarity (Dorward et al., 2004). For example, when Kenya liberalised its fertiliser market in the early 1990s, fertiliser importers, traders and dealers, who now had incentives to encourage use of fertiliser, found ways to cut logistical costs by some 40% in the 1990s. The real cost of fertiliser fell to farmers, so its use in the densely settled central parts of Kenya increased to levels similar to those seen in Asia (Ariga et al., 2006).

Since these issues are part and parcel of the nature of investment, for which private investors are rewarded with profit, is there a need for any public action here? Yes, there is — although it is important to be clear where the public interest begins and ends. Public action to support private investment may be justified by the benefits of learning that arise with new skills or innovative arrangements that facilitate business, as well as by the public good nature of some of the physical infrastructure such as roads or power supplies that may be necessary for greenfield private investment to take place.

For these reasons there may be a case for either public underwriting of risky ventures or for 'patient capital' — funds from the international community on concessional terms for long-term physical infrastructure investments. If such measures then lever in sufficient private investment that stimulates growth and jobs, the gains to society may make them worth the cost and effort.

3.4 A framework for thinking about public action for private investment in agriculture

These three sets of related insights can be combined to produce a framework based around a set of reasons for public policy and investment to stimulate private investment and innovations. Set out in Table 1, the framework organises reasons for public action at three levels: the macro level of the overall economy; the intermediate or meso level of particular markets and regions within countries; and the micro level of particular investments and projects. At each level the reasons for public action are set out, drawing on the ideas described in the previous sections. Thus far, the framework is about private investment to stimulate growth of smallholder agriculture. This then needs the complement of important development goals that are more than just higher production and incomes: the reduction of poverty and hunger, of inequalities by social group, gender, and region.

Table 1: Public action to promote private sector development in African smallholder agriculture

Reason	Public action [specific examples mentioned in this Guide appear in *italicised bold*]
MACRO Public role: • Enabling rural investment climate	Enhance investment climate: • Peace and stability • Macro-economics: low inflation; competitive exchange rate; modest interest rates • Regulations: reduced red tape, especially at borders [trade facilitation] ***Doing business indicators*** to measure progress ***Benchmarking agriculture [World Bank]*** ***TradeMark East Africa*** Establish, or underwrite existing, basic economic institutions (property rights, collective action, risk, etc.). Examples: • Land registration • Contract recognition — e.g. warehouse receipts • Micro-insurance
MESO Public role: • Rural public goods	Invest in physical infrastructure Public-private partnerships ***SAGCOT***
Market failures: information, imperfect information, thresholds, externalities	Mitigate rural market failures, especially in agricultural inputs and rural finance Encourage innovative arrangements that reduce transactions costs ***Financial Deepening Trust, Kenya*** Contracting ***Illovo sugar, Malawi; Eagle Lager, Uganda; Blue Skies, Ghana*** Group farmers together in associations and co-operatives to economise on transactions costs Local agents ***Dunavant cotton, Zambia*** ***Agency banking: Financial Deepening Trust, Kenya***
Specific issues surrounding individual investments *MICRO*	
Uncertainties, risks and short time preferences of private individuals and firms	Reduce risks — underwrite potential downsides • Micro insurance, indexed weather insurance for farmers ***Financial Deepening Trust, Kenya*** • Loan guarantees for banks ***Century Bank, Uganda***
High initial costs of physical infrastructure, of trial and error in improved techniques and arrangements, where they may well create external benefits and public goods Thresholds of activity that may trap individual actions at low level equilibria to achieve economies of scale and scope	Stimulate investment: ensure that potentially profitable opportunities get the capital they need Lever in private finance through public counterpart investment: grants, soft credit, development debt, commercial debt, equity • Patient capital ***Chiansi irrigation, Zambia*** • Challenge fund grants ***AECF*** ***FRICH*** Assist small-scale farmers to meet standards and otherwise engage with larger-scale actors in the supply chains • Certification for Global GAP ***Freshmark Kenya*** • Certification for Fairtrade or organic ***Blue Skies, Ghana*** ***Kasinthula sugar outgrowers, Malawi***

Reason	Public action [specific examples mentioned in this Guide appear in *italicised bold*]
Social and development goals	
Reduction of poverty and hunger; Equity by social group, gender, region	Raise development and social impact from business investments by • focusing public and public-private action on sectors, regions, scale of enterprise; • giving poor and vulnerable assets; or by • bringing excluded people into markets through forms of empowerment such as associations Encourage private sector corporate social responsibility or philanthropy — demonstrated engagement with public concerns, social responsibility
Environmental sustainability	[Not covered in this Guide]

This omits another major set of considerations, those of environmental sustainability and making agriculture compatible with changing climates both in adaptation and reduction of greenhouse gas emissions. They have been left out simply to keep this Guide within limits, since the discussion of complementary policies to ensure that investments contribute to environmental goals — by regulation, fiscal incentives, and institutional innovation including creating markets for environmental services — would double its length, as well as probably obscuring some of the more important points that will be made.

In the next section this framework will be used to show how the private sector may better engage with smallholders.

4 Experience and lessons

Across Africa in the last ten years or so hundreds, if not thousands, of cases of public and formal private initiatives to link smallholders to formal private firms can be identified. Below the level of national strategies, plans, policies and public investments, a plethora of activities have taken place at meso and micro levels, the result of initiatives by actors both private — farmers, farmer associations, firms — and public — governments, donors, NGOs and foundations. These efforts address one or more of the reasons for action seen in the framework using a correspondingly wide range of activities.

Before that, a word about the imperfect evidence is needed. To draft this Guide we have drawn on the existing literature, both peer-reviewed publications and the rather large collection of grey literature on these topics.[1] We have examined some 30 particular cases, generally micro studies drawing on secondary sources, of which those that link formal enterprise to smallholder constitute a sub-set of a dozen or so cases. In particular we draw on insights from half a dozen cases: two that involve traditional export crops of cotton and sugar; two concerning the export of non-traditional crops of pineapples and green beans; and two where firms source produce to process for the domestic market. Complementing this information interviews have been conducted with key informants engaged with both cases and wider programmes of smallholder engagement.

Reviewing this field reveals far more practical experience than is documented, while of what is documented much does not pass minimal standards for review and evaluation. Even when outcomes have been reasonably well observed and perhaps measured, counterfactuals are rarely taken into account. On those grounds, it would be possible to end discussion and call for further research. But that would ignore the fact that much of the imperfect evidence leads to similar lessons. Any particular case with weak evidence can mislead, but it would be something rather strange if the accumulated mutual insights from dozens of cases were all erroneous.[2]

4.1 Promoting private sector development at the macro, national level

This section will be brief, partly because a full examination lies beyond the scope of this Guide, and partly because actions at this level are rarely specific to agriculture and still less to smallholders. That said, actions at this level economise on public capacity and can be critical for the development of the whole economy.

As argued in section 3.1, investment and innovation in agriculture depend on an enabling rural investment climate, including the following conditions: peace and security; stability in national policies for the economy and business; a stable macro-economy marked by relatively low inflation, a competitive exchange rate, and modest interest rates; basic institutions for business being in place and functioning, including property rights; and a low or moderate set of regulations that govern business, sufficient to protect the public interest but without inhibiting legal business. Some debate exists over the extent to which governments should take a minimal approach to this, simply seeking to remove obstacles to private investment, or whether they should be more pro-active in seeking to stimulate, support and co-ordinate private investments (Estrup, 2009).

[1] For a wider review of the literature reporting experiences of linking smallholders in Africa to markets, see Wiggins and Keats (2013).

[2] This comes across strongly in the flurry of reviews that have been published since 2010, largely by practitioners or those who have studied these topics for many years. The similarity of their conclusions is striking, see section 2.3 of Wiggins and Keats (2013). The same is evident when international meetings are organised that bring practitioners and researchers together. Surprises and novelty lie in the detail of particular cases, not in overall understanding.

For more than thirty years there have been attempts to capture the quality of the investment climate and hence competitiveness across countries, with at least eight different initiatives to date — albeit some by the same agency, with later models based on earlier prototypes (Christy et al., 2009). Two stand out: the World Bank's Ease of Doing Business indicators which cover 185 countries, assessed annually since 2004; and the World Economic Forum's Global Competitiveness Index which rates 145 countries annually, also since 2004.

These indices are influential to the point where some countries actively seek to move their countries up the ranking by reforming those aspects of their economy that limit their scores, which of course is one of the objectives of compiling such measures. Until recently there has been no specific scoring for agriculture, but the World Bank, in collaboration with other donors, has since 2012 set out to remedy this for agriculture through Benchmarking the Business of Agriculture. The pilot exercise will establish these benchmarks for ten countries to be ready by mid-2014, with the eventual aim of covering 80 countries.

Trade rules are an important sub-set of the rules affecting business. Treaties to facilitate trade exist globally under the World Trade Organization (WTO), in addition to many bilateral and regional agreements. Not surprisingly there are programmes to make the agreed aims operational, including initiatives such as ***TradeMark East Africa (TMEA)***, funded by DFID, Belgium, Denmark, Netherlands and Sweden, which aims to facilitate trade within the East African Community by measures such as harmonising national trade rules and simplifying cross-border procedures (TMEA, 2013a and b).

4.2 Rural public goods and market failures: meso level action

Rural public goods

Rural public goods — physical infrastructure, investing in human capital, and generating agricultural technology — are largely a matter for the public sector. As with the enabling investment climate, providing sufficient rural public goods to allow private farms and firms to go about their business is a necessary, if not sufficient, condition for investment and innovation. This is well recognised in initiatives such as growth corridors that have been proposed for Africa as a way to concentrate and co-ordinate growth in clusters, of which the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) is a prime example, see Box A.

Given the low levels of investment in physical infrastructure in much of rural Africa over the last few decades, there has been interest in using PPPs to increase capital and bring in know-how that may lead to efficiency gains in construction and maintenance. This would follow the experiences seen in the UK and other Organisation for Economic Cooperation and Development (OECD) countries over the last twenty years. Although this appeals given the limited budgets many governments have to fund what can be costly investments in roads, ports, power supplies and so on, it is not so clear that PPPs have lived up to expectations of saving costs in the UK. Moreover, it requires considerable skill for governments to establish such arrangements in ways that deliver value for money for taxpayers while attracting good companies to build and operate infrastructure. This is made all the more difficult when some investments, such as rural access roads, do not readily yield an income stream (Poulton and Macartney, 2012).

Box A: Southern Agricultural Growth Corridor of Tanzania (SAGCOT): a contemporary big push

Launched in 2010 by the Tanzanian government, SAGCOT aims to achieve:

(i) increase in private agribusiness investment;
(ii) increase in number of smallholder farms linked with specific agribusiness value chains; and
(iii) increase in employment created in agribusiness value chains.' (URTPMO, 2013).

To do so,

> Over the next 20 years, SAGCOT aims to bring 350,000 hectares of farmland into commercial production for regional and international markets, to increase annual farming revenues by US$1.2 billion, to lift more than 2 million people (roughly 450,000 farm households) out of poverty. (ibid.)

Agricultural production will focus on rice and other grains, pulses, sugar and livestock.

To do this, SAGCOT aims to co-ordinate a wide range of actors, including:

- Government — Agricultural Council of Tanzania, National Microfinance Bank
- Donors — FAO, Ireland, Norfund, Norway, USAID, World Bank
- Civil society — AgDevCo, AGRA, Centre for Sustainable Development Initiatives, Korongo, Logistics Consulting Group, Prorustica, World Economic Forum
- International companies —Diageo, DuPont, General Mills, Monsanto, SABMiller, Syngenta, Unilever, Yara
- National companies and associations — Standard Bank, Confederation of Tanzania Industries, Tanzanian Sugarcane Growers' Association

The hope is to generate US$3 billion from public and private investments. A US$50 million catalytic fund from public money will provide low-cost capital for start-up agriculture businesses. One early example of levering private investment comes from Yara fertilisers that in early 2012 announced a US420 million fertiliser terminal at the port of Dar es Salaam.

Sources: Feed The Future, accessed 2013; Gradl and Jenkins, 2011; Jenkins, 2012; Milder et al., 2012; SAGCOT, 2011; URTPMO, 2013.

PPPs might also be used for agricultural research and extension but, perhaps even more than in the case of physical infrastructure, attempts to do this have had limited and mixed results (ibid.). The international agricultural research centres have partnerships with the large agricultural research companies who have specialised expertise in biotechnology, but the application of these has not notably led to breakthroughs; while some of the more pressing agricultural research issues such as soil fertility management or carbon capture require integrated approaches that are not the strength of the private companies. In extension, the Chilean experience of first using vouchers to allow smallholders to choose extension advice from private providers lasted only a few years before being replaced by public contracts to provide services to small farmers. Uganda also tried to privatise advice to smallholders, with some success, but with the providers focusing on the quick wins of better seed and fertiliser and directing their efforts first and foremost to those farmers in the village seen as having most potential for commercial farming (ibid.).

Making rural markets work better through private sector institutional innovation

Many of the initiatives that specifically try to engage smallholders with formal private firms are responses to the failings of rural markets, above all in access to farm inputs, finance and know-how. The key problem is that of information: since neither formal firms nor smallholders know enough about the competence and integrity of the other party, then transactions costs rise.

At least four ways to reduce such costs can be seen: interlinking deals through contracting; grouping smallholders to reduce transactions costs between them and

formal processors, traders and service providers in supply chains; using agents who can use their local knowledge to reduce costs; and, more generally, underwriting the initial costs of extending, deepening and developing markets that are largely absent in rural areas. All of these may see formal private enterprises engaging with smallholders, but with varying levels of partnership, with contracting being the closest of the relations that might be established.

Contracting

In this case the formal firm contracts with smallholders or groups of smallholders — often called 'outgrowers' in such schemes — for the delivery of produce, with quantity, quality and date set out, to be paid either a fixed and guaranteed price, or occasionally paid according to some clear formula that relates the price paid to domestic or world prices. Contracts may be written but equally they may be verbal. Some contracts involve nothing more than this: an understanding about marketing produce. Eagle Lager in Uganda (Box B), for example, is largely an arrangement to ensure that the brewery can source sorghum within the country. Beyond the agreement to buy sorghum, and provision of seed on credit, little else enters the deal.

Box B: Eagle Lager: procuring sorghum from local growers

The Eagle Lager partnership in Uganda began in 2003 when SABMiller's subsidiary in Uganda, Nile Breweries, developed a beer brewed from the *Epuripur* variety of sorghum bred by the local Serere Animal and Agricultural Institute (SAARI). When Nile struggled to source sorghum, it set up a contract scheme using an intermediary trading company, Afro Kai (AKL), to procure from farmers. Government helped by granting a temporary remission of excise duty on the new lager. A local NGO joined in to provide farmer training. AKL identified suitable production areas, selected farmers, formed working groups, arranged inputs on credit and dealt with collection and storage of grain.

Contracting is flexible, since a challenge was to recruit the right number of farmers. In 2006 too many were enlisted as numbers soared from just over 1,000 to more than 8,000, leading to oversupply of sorghum and subsequent reduction in contracts to 1,000 the next year. In more recent years, more than 5,000 have been contracted.

Almost all the growers, 90%, have fewer than two hectares of land. This appears to be of necessity rather than by design. SABMiller may like to advertise the scheme as part of its corporate social responsibility, yet the intermediary company AKL has no illusions about the difficulties: the AKL procurement manager is on record as seeing buying from small farmers as bothersome.

Smallholders, nonetheless, benefit from additional incomes estimated at US$250 a year for a typical delivery of 1.4 tonnes of sorghum. Strong links are reported, with seven additional jobs created for each grower, albeit seasonally.

Gender conflicts have been reported, since men get the monies while at least some of the field work is by women.

Sources: Bayla, 2007; Jaffee et al., 2011; van Wijk and Kwakkenbos, 2012.

Other contracts go beyond this to link the produce deal to other transactions, most commonly by offering the smallholders inputs in advance, with their costs to be deducted when the produce has been delivered. There may be further interlinked deals: the firm may also provide technical assistance, especially when it is in the interest of the firm to monitor the way the crop is produced, especially useful when certification is involved. Some firms may offer labour gangs to help harvest crops; something likely when the harvest involves heavy labour inputs and timeliness of harvesting matters, as applies with sugar cane. Machine services or irrigation may also be provided. Sometimes the firm may advance food, cost of school fees, or other consumption expenses to growers, with costs deducted when crops delivered are paid for. Finally, land may be an implicit part of the deal when the contracted small farmers cultivate plots on land that belongs to the company.

The contracting firm may rely entirely on smallholders for supplies, but more commonly they take on supplies from spot markets, from arrangements with larger-scale farmers, and — especially when a processing plant has to operate at a threshold to achieve economies of scale — from a nucleus estate operated by the firm. Illovo sugar in Malawi, see Box C, exemplifies a highly formal outgrower scheme where the company buys in a small proportion of the cane it processes from smallholders in the vicinity of the sugar mills.

Box C: Illovo, sugar, Malawi: highly formalised contracting of a smallholder elite

Illovo is a multi-national company based in South Africa that grows and processes sugar in southern and eastern Africa. Its Malawi subsidiary operates two estates, with a combined area of more than 20,000 hectares, at Dwangwa on the shores of Lake Malawi in Nkhotakota District, Central Region, and Nchalo in the Shire Valley of Chikwawa District, Southern Region.

In both locations, outgrowers also supply cane under contract to the mills: in 2010, 751 small farmers in Dwangwa cultivated an estimated 2,250 hectares of cane; while another 282 outgrowers with 750 hectares of cane in Kasinthula supplied the Nchalo mill. Most of the outgrowers have irrigated plots, although there are some dryland cane farmers supplying Dwangwa.

Contracting in this case is highly formalised. For example, at Kasinthula the contract runs for 25 years with local land assigned to a managing trust. In close co-operation with Illovo, the trust organises production and harvesting to strict standards and schedules. Inputs and planting material are supplied on credit, the costs deducted from cane payments. Outgrowers must sell to Illovo: since Illovo operates the only two mills in the country, it is effectively the monopoly buyer of cane. Growers are paid for their cane according to the value of sugar, molasses and ethanol that the mill manufactures, with growers getting around 60% of the total value. Deductions are made for inputs and management, plus the costs of original capital investments in the irrigation scheme for outgrowers. Since the finance at Kasinthula came from the European Investment Bank it is denominated in Euros, so that when the Malawi Kwacha was devalued in 2002 repayments leapt up to became a heavy burden. Illovo apparently subsidise some of the repayments.

Outgrowers at Kasinthula have since 2004 or earlier been certified as Fairtrade so that their processed sugar is sold to the UK Co-operative food chain at a premium. The Co-operative has also funded local community development, providing health centres, schools and clean water. The actual growers at Kasinthula may not be the poorest in their communities. Reports indicate that those who got plots on the irrigation scheme and so were contracted are affiliated to local chiefs. Their payments can be US$2,000 a year or more. They have as much as five hectares of land — well above the average for southern Malawi — and hire in labour to work their fields.

Although the Fairtrade premia are meant to be spent on public works to the benefit of all in the local community, some of this is paid directly to growers. It seems, then, that in this case the direct beneficiaries of contracting are the better-off and better-connected amongst smallholders: others gain through jobs on the farms and links when growers spend their earnings.

In this case, tensions arise in two directions. On the one hand, the growers suspect that Illovo has the whip hand with its 25 year contract and monopoly buying power, so that they do not get the full value of their cane while management payments seem high. Yet Illovo runs a state of the art estate and sugar mill that produces sugar at some of the lowest costs in the world and the growers benefit considerably from that expertise. On the other hand, locals who are not in the scheme see a smallholder elite that thanks to social connections gets access to payments and benefits that others can only dream of, while employing locals on low wages.

Sources: Agar and Chiligo, 2008; Church et al., 2008; Illovo Sugar (Malawi), 2009/10/11/13; Kumwenda and Madola, 2005; Frank and Penrose-Buckley, 2012; Richardson, 2010.

In sum, a great variety of contracts may be seen in practice. Contracting may be quite fluid, with varying degrees of partnership between the formal company and smallholders. Blue Skies pineapple processing in Ghana, see Box D, obtains fruit from

large and small farmers within Ghana, some in groups, others not, as well as from neighbouring countries.

Box D: Blue Skies, pineapples, Ghana

Blue Skies Agro-Processing Company has since 1998 processed fresh fruit (mainly pineapple) at its plant in Nsawam, 25 km north of Accra, both for European supermarkets and the growing domestic juice market. Most fruit comes from Ghana, supplemented by sourcing from other parts of West Africa. Of domestic pineapples, around 30% come from large farmers and the remaining 70% from smallholders. Blue Skies deals both with individual smallholders, some with contracts, some without, as well as with the Blue Skies Organic Cooperative (BSOC), an association covering four villages that have been involved with Blue Skies since 1998.

Blue Skies has helped 18 farms achieve Global GAP standards: in return these farms are obliged to sell to the company. The company has also helped BSOC farmers obtain certifications from the Soil Association for organic produce as well as for Fairtrade.

The number of outgrowers varies, with figures of 140–150 in the last few years, with 385 hectares under fruit.

Blue Skies offers its outgrowers technical advice and training, but not inputs. Credit has occasionally been given to selected farmers to allow them to expand their operations. The company pays farmers promptly at higher prices than other companies trading pineapple in Nsawam. Fairtrade-certified farmers in BSOC get a premium over this price.

Given that smallholders who supply Blue Skies typically have three or more hectares, it is likely that the scheme does not involve marginal farmers. Poorer households benefit from jobs in the factory where 1,500 staff are employed, on the farms of contracted growers and in the local economy through consumption links.

A Blue Skies Foundation involving the company, Waitrose, and Dutch retailer Albert Heijn has since 2009 been undertaking social projects by building classrooms, toilets, and providing clean water to local communities.

Blue Skies stands out for being a medium-size enterprise started in Ghana without the backing of international capital. Despite the vulnerability to changing business fortunes where temporary losses cannot be absorbed by a multinational conglomerate, the company has developed with offshoots in Brazil, Egypt and South Africa. It has also weathered the storm that broke in the mid-2000s when European supermarkets turned away from Ghana's sweet cayenne fruit in favour of the MD2 variety from Costa Rica. Getting reliable supplies of fruit remains a challenge, so that the processing plant is not always operating to capacity and workers have to be laid off.

Sources: Dannson et al., 2004; DFID, 2011; Fairtrade Foundation, 2008; McMillan, 2013; Paglietti and Sabrie, 2013; Ross, 2009; Sinclair, 2013; Vermeulen and Cotula, 2010; Wolter, 2008; World Intellectual Property Organisation, 2012.

For the formal firms, contracting in supplies offers several potential advantages that justify the transactions costs. It may be a way to obtain produce at lower cost than can be achieved on a central estate. This is most likely when the crop requires intensive labour and some care in harvesting, where self-supervision on family farms reduces labour costs. It may be a way to access some premium niche markets, as in the cases of Illovo and Blue Skies where some of the outgrower produce can be certified as fair-traded. In some cases, there may be no other way to obtain supplies: Eagle Lager, for example, would find it difficult to obtain an estate large enough to grow all the sorghum that it sources from smallholders, Finally, contracting may simply be an exercise in corporate social responsibility, a way to establish the legitimacy of the large formal firm in the eyes of society and government. This is most likely to be the case where the formal firm is a high profile multinational that might otherwise be vulnerable to expropriation or other exactions.

Recent reviews of contracting in Africa (Barrett et al., 2012; Oya, 2012; Prowse, 2012) conclude that successful contracting depends on three factors.

- ***A good business opportunity exists*** that allows processors to make money while being able to pay farmers a price that offers better returns than alternatives might, such as producing food crops for local markets. That applies when the crop is high value — often because the contracting firm has access to export markets, supermarkets, or niche markets for organic or fair-trade produce; or is being produced with more advanced technology than that being used by smallholders — for example, improved seed or planting stock, fertiliser, irrigation. The opportunity, of course, needs to be one that neither party could easily seize without the participation of the other;
- ***Both parties are committed to the contract.*** It helps if farmers cannot sell on the side to traders and thereby avoid repayment of input costs: that usually applies when the crop has to be processed in large and costly plants, such as a sugar mill or a tea factory. Most contracts seen are for such processed or export crops where alternative buyers are few. Contracting for staples or for higher-value crops destined for the domestic market is not common.
  For contracting processors or traders, it helps if supplies from smallholders are essential to their business: if they can get supplies from large farms or the spot market there may be temptations to default when the market price falls well below the contracted price — even if inputs have been advanced to contracted farmers. That leads to the next point …
- When contracts include a guaranteed or fixed price for the produce, it helps if the ***market is reasonably stable*** so that the promised price remains above — although not that far above — that on the spot market. If the agreed price is a long way from that on offer in the open market at time of produce delivery, either farmers or processors may be tempted to default. The existence of a signed agreement often counts for little when parties default: taking the defaulting party to arbitration or court is often costly, with little chance of getting commensurate compensation.

In the right circumstances contracting can work well for both parties. Yet it seems — there are no accurate observations of the numbers, but in most countries there will be at most tens of thousands of contracted farmers, compared to hundreds of thousands of smallholdings — that most smallholders in Africa are neither part of such schemes, nor have they had the chance to join one.[3] But if contracts can provide access to inputs, working capital, technology and marketing, then why are there not more schemes? Presumably the conditions for success set out above preclude many value chains. Often crops and products can be grown, processed and marketed on small scale by all and sundry, so processors and exporters rarely have a monopsony. In such cases they can probably get their supplies from farmers in spot markets. There is little point in setting up contracts if business can be done without them.

Even though contracting is one of the most commonly researched responses to failing markets, significant gaps in knowledge arise, above all in the dynamics of contracting, since so many studies are snapshots in time. It seems from the few studies where contracting has been followed through time, that farmers drop out of such schemes quite frequently, some later re-joining. Firms contracting may also expand and shrink their schemes as demand on the market indicates.

Moreover, the cases documented are not random samples, since selection bias applies: the schemes that are documented are almost inevitably those that survive, with failed schemes being unobservable and usually undocumented. Further biases apply when looking at the impacts on farmers, since contracting firms tend to pick out the more

[3] Cotton may be an exception. Given the need to obtain inputs to grow good crops, most cotton farmers in Africa are contracted with the processing company offering seed, fertiliser and crop protection chemicals on credit. Hence in countries with large areas to cotton, significant fractions of smallholders may produce under contract.

favoured areas and the better resourced farmers within them. These farms and locations would probably be doing well whether or not a contract scheme operated (Barrett et al., 2012; Prowse, 2012).

Associations and co-operatives: grouping farmers to reduce transactions costs

Few formal firms can afford to deal individually with hundreds, perhaps thousands, of smallholder suppliers. If, however, smallholders can be formed into groups that become the point of contact for deals, then not only are costs saved but also peer pressure in the group may come into play to ensure that individuals honour commitments and generally perform as well as they can. It is thus not surprising that so many of the initiatives seen to link smallholders to other actors in the supply chains involve farmers being aggregated into a farmer group, association or co-operative.

Grouping farmers is a far from simple way to overcome transactions costs. If groups are to function well, they cannot be too large, members need to select others they trust, and they probably do not want to take on more than they can manage — and transparently so. On the other hand, since people in rural Africa, as elsewhere, come together for various existing purposes — faith groups, school committees, social clubs, etc. — sometimes the group for marketing or input supply may be formed around an existing one. But there is a potential catch: using existing groups increases the likelihood of group cohesion, but it may not always be socially inclusive. It would be foolhardy to imagine that a farmers' group formed to grow commercial crops to sell on contract to a processor is going to include smallholders who struggle to raise working capital, who have little land, lack labour and so on.

Moreover, it is to be expected that groups will take time to learn their business and in the process may make mistakes. Hence those linking to them either have to be prepared for hiccups in the early stages, or else need to accompany the groups to help them avoid pitfalls.

Not all formal firms want to deal with groups, however. One processor we spoke to reported that groups can gang up and make unrealistic demands, so that he preferred to deal with individual smallholder suppliers, time consuming as that might be.

Local agents: drawing on the knowledge of insiders

An alternative to forming groups is to take advantage of the local knowledge within the village, by acting through an agent locally resident. Banks sometimes use village agents to establish outreach centres, most notably in Indonesia, where the operations of these units have contributed disproportionately to bank profits (Seibel, 2005). Kenya has been developing agency banking, with local banks being supported by the DFID-funded Financial Deepening Trust (KPMG, 2012).

An example of this being used by a formal firm comes from Zambia, where Dunavant cotton contracts growers through distributors based in villages, selected from amongst the local farmers, see Box E.

Box E: Dunavant cotton's local distributors

When, in 1994, Zambia privatised cotton processing and marketing, two private companies, Clark and Lonrho, the latter subsequently bought out by Dunavant, entered the market. Both employed their own extension agents to advance inputs to growers, with costs deducted from payments for delivered cotton.

By the late 1990s, however, additional ginners entered the market so that processing capacity exceeded cotton production. As the ginners scrambled for supplies, it led to chronic problems of side-selling and defaults on inputs advanced by the two largest firms.

When Dunavant took over Lonrho's operations in 2000, it did away with the Lonrho model of 800 extension agents, a major overhead. Instead, Dunavant recruited distributors who conveyed inputs to farmers, typically around 65 of them for each distributor, on credit in return for cotton. Paid on commission rather than a salary, the distributors received a commission that varied with the credit recovery rate, rising to as much as 21% if there were no defaults at all.

The distributors were required to be local residents and to be cotton farmers themselves. They were trained not only on production, but also on credit management.

The model worked: within three years Dunavant was recovering 93% of its advanced credit. The distributors had the incentive to prevent side-selling, but equally being locals they presumably had more knowledge of who was credit-worthy, and in any case could monitor crops and harvests amongst the local farmers.

Sources: Jones and Webber, 2010; Poulton et al., 2004.

Extending and deepening absent markets: financial services

Financial services have long been almost absent from the African countryside, with most smallholders having access to perhaps some informal services, but often not even that. Very small numbers indeed have had accounts with formal financial agencies.

Several things may now be changing that. Information technology in the form of mobile phones makes it possible to transmit information, rapidly and cheaply, and hence, since so much formal money is nothing more than data entries, money can be moved as well. Some banks are taking seriously the idea that ordinary people who may only have penny savings can, in the aggregate, constitute a major new market for banking. Finally, programmes have been set up to support those banks and agencies that are prepared to take a chance on extending the reach of their services and pioneering new products. DFID has supported a ***Financial Deepening Challenge Fund***, whose most outstanding success was backing Safaricom mobile phones in Kenya to develop the M-Pesa monetary transfers by mobile phone. The phones provided the hardware, but there was still a huge effort to set up and train the thousands of local agents that allow the system to work.

Loan guarantee funds have been used to inject liquidity into agricultural input chains, whereby wholesalers advance inputs to local agro-dealers on credit so that they can stock a reasonable inventory. It has not just been about funding: the successful experiences registered in eastern Africa have been accompanied by detailed training of dealers and wholesalers, following the model developed by CARE in Kenya and Zimbabwe in the 1990s and followed later by the Rockefeller Foundation and the Alliance for a Green Revolution in Africa (AGRA). In Malawi, before the farm input subsidy programme started there was concerted effort to develop input dealerships with more than 300 dealers trained and supplied with stock on short-term credit from wholesalers. Default rates were very low: less than 1% (Poulton and Macartney, 2012).

An early experience of underwriting rural banking comes from Uganda. In 2005 Rockefeller put up US$500,000 to back US$1 million of new loans by Uganda's Centenary Bank in rural areas. It succeeded — less than US$11,000 of defaults had to be covered by the fund — and the scheme was renewed. That has led to larger schemes in neighbouring countries:

> Drawing on this experience, AGRA has negotiated further loan guarantee deals, including a US$5 million guarantee to Equity Bank in Kenya, a guarantee fund of US$10 million to Standard Bank expected to leverage US$100 million of new lending to the agricultural sectors in four African countries and a guarantee fund with National Microfinance Bank in Tanzania, expected to leverage US$5 million in loans to agro-dealers … (Poulton and Macartney, 2012).

Following on from the Financial Deepening Challenge Fund, DFID has supported programmes to encourage deepening and extension of financial services in several countries, including Kenya, see Box F.

Box F: Kenya's Financial Deepening Trust (FDT)

Started in 2005, the Trust is one of several across Africa — others include Rwanda, Uganda — that aim to develop financial markets so that low-income households and small businesses have better access to financial services. Funded by DFID, Sweden's SIDA and the Gates Foundation, it operates through a Trust with professional services provided by a team run by KPMG Kenya.

To do so it operates at all levels, from macro issues of the regulatory environment for finance through support services for financial services providers down to training and other projects with individual providers and their clients. Hence Trust staff work with banks, other formal financial agencies, NGOs, government, donors to support whatever can be done to widen access to financial services.

Work covers four areas: future financial systems; poverty reduction; inclusive growth; and knowledge generation. The portfolio is wide-ranging — so wide one might wonder whether the ambition can be matched by action — and includes several novel applications.

For example, monetary transfers under government social protection may be delivered through formal transactions by financial providers, rather than cash pay-outs by civil servants.

Agency banking, where services are provided by licensed and trained operators in shops, filling stations and the like, is being developed: something that could vastly reduce the distance and time needed to get to the nearest bank or agency branch.

Micro-insurance for health is another area of activity.

For smallholder agriculture, the Trust is working on weather-based index insurance and warehouse receipts systems. Since low-income households are more likely to deal with micro-finance agencies and savings and credit associations, The Trust focuses on working with these financial providers. In 2007, no less than 57% of adult Kenyans had access to an informal financial group.

The Trust's programme shows how far financial development has moved from the 1970s when state banking was in favour, when governments offered subsidies on interest rates and wrote off bad debt — actions that were both very costly, undermined sustainability of financial institutions and openly encouraged the moral hazard of delinquent borrowing.

The Trust's work, in contrast, is admirably broad and forward thinking, looking not — as might have applied in the past — at loans to firms and farms for specified purposes, but rather across the range of services — savings, insurance, remittances, etc. — used by not only businesses but also households and individuals.

Whether the Trust and its partners can achieve all this is another question. However, given the advances seen in Kenya over the last decade or so — M-Pesa monetary transfers for example, or the growth of the Equity Bank as provider of finance to the bottom of the pyramid — there are grounds for optimism and ambition.

Sources: FDT Kenya web site; KPMG, 2012.

4.3 Fostering specific investments and innovations

Individual investments, especially those that are novel — since they represent a significant increase in levels of capital investment, technical skill, or management arrangements — commonly face three obstacles. Risk is one of them, being initially high for start-ups and innovations since information on circumstances will be limited. Another barrier is the often high initial cost of physical infrastructure that once in place may serve for decades in the future — well beyond commercial investment horizons. The third is the time and cost of trialling innovations that almost always will need some adjustment.

Given the public interest in reducing initial risks, seeing physical infrastructure developed and learning take place there is a case for public partnerships with private investors to overcome these deterrents to commercial investment.

Underwriting risks[4]

The loan guarantees to rural banks and input supply chains described above in section 4.2 are examples of public underwriting of risk. Credit guarantees may also be offered for other risky private investments where there is a public pay-off.

A different approach is to ***stimulate insurance markets in rural areas*** where they are usually absent. Insurance of course can cover a wide range of risks, including those of early death, sickness and injury, cost of burials, fire and theft. Here consideration will be limited to insurance of business risks. Farmers typically face two significant sets of risks: production risks of bad weather, attacks of pests and diseases; and risks of market prices being lower than expected when the time comes to market surpluses.

Attempts to insure farmers against crop and livestock losses have long been seen, but too many have failed owing to high administrative costs or the moral hazards of farmers colluding with assessors to claim fictitious damages (Hazell et al., 2010). From the 1990s onwards schemes have been piloted to deal with these drawbacks, by offering insurance where the pay-out is related not to specific losses of individual farmers, but to overall weather seen in a reference area. For example, crops in a district of rainfed farming may be insured so that all participating farmers receive a known compensation if the rainfall recorded in a local weather station falls below a particular threshold. The beauty of such schemes is that there is no need to assess specific losses field by field: all that is needed is a reliable — and secure — local weather station.

Few of the pilots of index insurance, however, have so far been taken to scale. Some success has been seen: insured farmers use more fertiliser and improved seed than those not insured (Cole et al., 2012); farmers in northern Ghana offered weather-index insurances invested significantly more in fertiliser and planted greater areas than their neighbours who received a cash grant (Karlan et al., 2012). Take-up of index insurance has, however, often been low, although it is not clear whether low adoption stems from low underlying demand or shortcomings in the way that insurance schemes have been designed and marketed (Cole et al., 2012).

[4] This is not an argument for government taking on all risks of investment and entrepreneurship. That would distort business decisions to encourage investments that are too risky. Here we are concerned with initial risks that can be very high for first movers and innovators, but which fall considerably once someone has taken the initiative and found out how to do something novel effectively.
In some cases the rewards to taking risks can be protected through patents: but the kinds of challenges considered here — finding the best crop management system for soybeans in particular ecosystem, pioneering a particular form of contract with smallholder outgrowers — cannot be patented. The first mover faces all the costs and considerable risk, while second movers can just imitate freely.

Public finance to support private investment

The principle here is clear: to offer a public contribution that triggers private investment that would otherwise not take place. In practice, this leads to consideration of a range of ways to provide such support (Miller, 2013).

- ***Grants*** to private companies, often matched to the level of private investment. The level and form of grant may be defined through:
    - ***challenge funds***, where private firms submit applications for public grants to support investments where there is some added value; or through
    - ***'pull funds'***, where a prize is awarded for companies that generate advances in specified fields, usually where a technical break-through is the mutual aim.
- ***Patient capital***, where a public agency takes equity in return for finance, but with concessional terms for reward of that equity.
- And ***concessional loans*** at low rates of interest or with long grace periods.

All of these possibilities can in practice have many variants that define how much support is offered, when it is provided, and how performance is monitored and rewarded (or default is penalised).

Challenge funds have been popular in the last decade, partly since they transfer the onus of defining the project and the public support requested to the private investor — which makes sense in that the investor has more knowledge than the public financier. DFID has established a fund for agricultural development: the Africa Enterprise Challenge Fund (AECF), see Box G.

Box G: Stimulating private innovation through challenge funds: Africa Enterprise Challenge Fund (AECF)

The ***Africa Enterprise Challenge Fund*** administers funds provided by a consortium of donors, including DFID, DANIDA, SIDA, Netherlands and the Gates Foundation, that are intended to stimulate commercial investment and innovation in 'agribusiness, renewable energy and adaptation to climate change technologies, rural financial services and media and information sectors, across Africa.' The Fund forms part of AGRA but effectively operates independently, being managed by a professional team that reports to an independent board.

It began work in 2008. It operates through competitions, of which there have been four general rounds, plus additional windows targeting fragile states, turning agricultural research ideas into business, and for renewable energy and climate change adaptation. Successful applications are expected to show that they have a business proposal that will be sustainable and will generate development benefits, but which needs a grant from the Fund to make it commercially viable. Awards range between US$0.25 million and US$1.25 million.

Competition to date has been lively: more than 4,000 applications have been received, with 89 receiving funding worth US$65 million in all.

Funded enterprises are diverse. In Sierra Leone a company buys cocoa from a war-ravaged district in the east, paying a premium price for quality cocoa of three times that paid by traders before. The company works with local agents who register the 8,000 participating farmers and work with them to ensure that the quality is realised. In western Kenya a company has drained a former swamp and amongst other things has farmed fish for export to Europe. Some 6,000 local farmers are being trained as outgrowers for the company. In northern Ghana an ambitious programme with multiple stakeholders aims to provide grain farmers with inputs and market the output. Small-scale dairying is being promoted in Tanga, northern Tanzania, with more than 4,000 dairy farmers contracted.

It is difficult to assess the contribution of challenge funds. In this case, a consultancy has been employed to help monitor, evaluate and distil knowledge from the Fund's operations. A simple framework has been created for each investment that sets indicators for inputs to activities and outputs that lead to business performance. But beyond this development

impacts are assessed as well as contributions to system-wide change, as may be seen when the enterprise is copied by other firms, or when smallholders not part of the funded schemes adopt new techniques that they have seen in neighbouring farms or villages.

Even so, measuring results has tended to lag behind the rapid expansion of the portfolio (Heinrich, 2013), reflecting the frequent tensions that arise between the imperative to make things happen and establishing clear baselines and indicators for measuring performance.

Sources: AECF website; Heinrich, 2013.

Equity stakes have the attraction that the public support can share in the rewards should the investment prove successful. Box H describes an irrigation scheme in southern Zambia that promises high returns economically and socially — an estimated 17% a year internal rate of return (IRR) — but which has 11% financial IRR that would not attract private equity given the long-term payoffs to physical works that will last 50 or more years and the risks of greenfield investments. Patient capital should lever in private funding and allow the scheme to go ahead.

Box H: Patient capital in action: irrigation at Chiansi, southern Zambia

Chiansi lies in Kafue District of southern Zambia. Although most smallholders have access to around five hectares, they currently cultivate rainfed fields manually, so that they only make use of one hectare, leaving 80% of their land fallow. Moreover, with little access to fertiliser and other inputs, they achieve maize yields of only one tonne per hectare. Yet plenty of water goes unused in the Kafue river that could irrigate the fields. With the use of fertiliser yields could rise several times over.

Capital is the limitation, both to develop an irrigation scheme and to buy in seasonal inputs. The scheme has been designed to overcome this by mobilising private capital and know-how. The idea is that the small farmers will lease their unused land to farming companies that will farm large plots under pivot irrigation. In return, the smallholders will receive an equity stake in the companies, while for their own plots they will get irrigation water, electricity, and lease of equipment. After 25 years ownership of the land will revert to the smallholders.

The model has been piloted within the project area:

> The pilot involved the development of 208 hectares of contiguous farmland currently owned by smallholder farmers in Chanyanya Village at a cost of around US$2.5 million. One hundred and forty-eight hectares are being farmed under commercial management and the remaining 60 hectares continue to be farmed by the smallholder farmers.
>
> Irrigation pivots have been successfully installed on both the commercial farm and the smallholder plots. Wheat and soya yields in the first season on the commercial farm were up to expectations. Smallholder farmers have begun to diversify their crop mix to include vegetables, as well as maize. (Palmer et al., 2010b)

The entire scheme, covering 2,500 hectares, requires US$30 million in capital, the majority being for physical infrastructure with a long life of 50 years or more. Projections show that commercially the scheme will generate an internal rate of return of 11%. This, however, is too low to attract commercial investment owing to the risks and the long pay-back for the irrigation works that exceeds commercial investment horizons. Yet the social returns are much higher than the commercial, which take no account of the benefits that smallholders get from their irrigated plots, nor does it value construction at the shadow wage rate — lower than that to be paid, nor does it set aside taxes that are a transfer payment. Make these adjustments, and the economic and social rate of return is 17% annual equivalent.

Hence patient capital will be needed to increase the returns to equity to a level where commercial capital will be attracted to the scheme that:

> … will require an investment of patient capital amounting to US$15 million with a grant equivalent cost of about US$8 million. This patient capital will lever-in US$15 million of commercial debt and equity at financial close. It will be replaced with 100 per cent commercial capital over time.

In the past this kind of scheme would be have been wholly funded by a government agency. The beauty of the current proposal is that the public capital stake is half what it might have

been, while the scheme is operated by commercial managers who have a stake in the outcomes and hence will strive to make it work — after all, should it fail, all the commercial capital would be lost.

The challenge is that the management arrangements are quite complicated with stakeholders from local smallholders, government, commercial farmers, private financiers, and donor consortia that provide the patient capital. Ensuring that all parties take on a fair share of risks, costs and rewards requires considerable expertise to get both the overall scheme designed and the many details that will make it work, while communicating sufficiently that all parties feel they have been treated fairly and are committed to the scheme's success.

Sources: Palmer, 2010a and 2010b.

Designing these supports to commercial investment demands careful consideration over the reasons for public funding, how much to give, and the monitoring of the investments (KPMG, 2012; Miller, 2013). Three steps should be undertaken: 'define the purpose, isolate the market failures, and identify the appropriate instruments' (Miller, 2013).

In many LICs there will not be this capacity in government. All such schemes to date have seen considerable efforts by donors, usually assisted by expertise hired in from the private sector, to assess schemes, devise support, and monitor implementation.

Some have set high hopes that private capital can be attracted to commercial investment in schemes that engage smallholders, based on the idea that significant returns can be realised once bottlenecks of limited finance and expertise have been relieved. This is an agricultural equivalent of the thinking that the 'bottom billion' represent a business opportunity as well as a social one, so that there can be multiple wins. ***Impact investment*** is meant to capitalise on this.

In reality, the risks are substantial while returns to pioneers may be neither great — see Table 2 — nor that long-lasting as imitators follow the pioneers and compete away any initial high returns to initiative and innovation (Karamchandani and Koh, 2013). Business and philanthropy, moreover, are not used to sharing ideas in forms that lead to joint action: just one of a set of difficulties that apply when investors enter the arena of small-scale, informal business:

> The reasons [for limited investment], which are well known to those active in emerging markets, are myriad and include, to name but a few, (1) the difficulty of aligning different organizational processes and incentive systems; (2) information asymmetry; (3) the high cost of deal origination; (4) small deal sizes and/or a lack of effective aggregation mechanisms; and (5) overly conservative perceptions of market risk. A further key constraint is that the relevant cast of characters is not used to partnering together in this way. (Morton and Kimble, 2013)

Table 2: Ecosystem barriers to bringing an innovative business model to scale

Scale and focus of action	Typical problems seen
Pioneer firm	Inappropriate business model Too little management capacity Lack technical skill Lack of finance for investment
Value chains	Insufficient or inappropriate inputs Inadequate sourcing channels from bottom-of-pyramid (BoP) suppliers or distribution to BoP customers, or both Lack of connection from BoP suppliers to strong end demand Lack financing through value chain Lack of support services
Common and public goods	Lack of BoP demand for socially beneficial, especially 'push', products Shortage skilled workers Lack industry know-how Lack market information Lack effective standards
Public policy and regulation	Poor response of public policy and regulation to innovative models Lack official support for standards Political pressure and obstruction
Macro environment: macro-economic climate and ease of doing business	[less important]

Source: Adapted from Figure 1, Karamchandani and Koh, 2013.

Linking smallholders to export markets Certification: crossing an agricultural threshold

Some of the most rewarding markets for African farmers lie in growing high-value produce for European supermarkets, above all fish, flowers, fruit and vegetables. For most smallholders, however, getting access to these supply chains requires meeting rigorous conditions for quality and consistency, timing, and bulking of deliveries — plus, increasingly, documenting production practice. The latter is mandatory for many European supermarket chains who have established Global GAP (Good Agricultural Practice) requirements. These cover working conditions, health and safety in fields and packing sheds and use of agro-chemicals on crops. Not only do specified practices have to be followed, but also compliance needs to be documented. In addition, for some specialist markets there are additional requirements for certifying produce as organic or coming from low-income farmers where 'fair trade' provisions have been met.

Unassisted by formal intermediaries, it would be near impossible for smallholders to deliver to such markets. In practice, the links are made by combinations of local exporters who collect and dispatch supplies to European wholesalers, and of retailers in Europe who either directly source produce from smallholders or who work through locally-based agencies that do this, working to their instructions. DFID has encouraged this by setting up the Food Retail Industry Challenge Fund (FRICH) that helps European food business link to African smallholder suppliers, see Box I.

While these markets offer premium prices, certification can be costly for smallholders. Meeting Global GAP requirements for procedures and documentation can cost a farm US$580 in Kenya (Ashraf et al., 2009) or US$3,900 [€3,000] in Malawi (Dyborn Chibonga, National Association of Smallholder Farmers of Malawi, personal communication) — an enormous overhead for a small farm. When Global GAP became the standard for leading European supermarkets in 2007, many smallholders in Kenya and Senegal ceased to supply them. Horticulture exports from these countries now come mainly from large farms and not smallholdings (Ashraf et al., 2009; Maertens and Swinnen, 2009).

Box I: Linking African smallholders to European supermarket customers: the Food Retail Industry Challenge Fund

The ***Food Retail Industry Challenge Fund*** began in 2008 with the aim of supporting smallholder farmers, agribusinesses, and agricultural workers in Africa to bring their products to Europe's markets and shoppers — and thereby to raise incomes amongst them.

FRICH links with retailers or retail brands with an established share of the UK or other European markets. It challenges them to find innovative ways to bring African foods to Europe, by removing blockages to market access and making shoppers in Europe aware that their purchases 'make a difference' to poor farmers (DFID, 2013).

By the end of 2013, four funding rounds had resulted in support to 26 projects in no fewer than 13 countries: Burundi, DR Congo, Ethiopia, Ghana, Kenya, Malawi, Mozambique, Namibia, Rwanda, São Tomé and Principe, Senegal, Uganda and Zimbabwe.

Grants provided so far have been between £150 thousand and £600 thousand, up to a ceiling of £1 million. Businesses winning grants must contribute at least 50% of the value of the grant towards the cost of the project. The current approved budget of FRICH has grown from under £150 thousand in fiscal year 2008/09 to more than £2.5 million for 2014/15.

Examples include Betty and Taylors in Rwanda, who add value for smallholder tea farmers by upgrading quality and ethical practices. Sainsbury's sources export-quality coffee from the DR Congo. As well as tea and coffee, FRICH-supported projects involve diverse products such as fresh and dried fruit, flowers, vanilla, tilapia (fish), peanuts, sweet potato and palm oil.

Although too early to assess impact, the fund has seen good progress against outputs. Seven new food product trade links to the UK have been set up, including single origin coffees from DR Congo and Malawi, drinking chocolate from São Tomé, vanilla and berries from Uganda, tea from Rwanda and Kenya, and fresh tilapia from Zimbabwe. Expectations have also been moderately exceeded in enhancing consumer perceptions of African sourced food products, as eight products from the first three rounds were using African provenance as a marketing advantage. More than 9,750 households on low incomes or in poverty were engaged on the FRICH projects, well ahead of the target of 6,000.

Though FRICH can demonstrate success at the level of the projects, monitoring and evaluation in general has been flagged as a challenge, particularly in terms of assessing the whole portfolio, and especially as FRICH was not designed to include a counterfactual.

Source: DFID, 2013.

It is not surprising, then, that some donors and NGOs have offered to help smallholders meet these requirements by subsidising the initial round of certification and training farmers. Two problems arise with this: the opportunity costs of such assistance, given that often the smallholders who are in a position to take advantage are those favoured by the quality of their land and by proximity to airports; and that the requirements for certification involve expensive annual costs that recur (Humphrey, 2009; Jaffee et al., 2011). Hence Jaffee et al. (2011) caution against creating high expectations over the scope for certification.

For some smallholders — although probably rather a small fraction of all small farmers — it is possible to meet the requirements. For some family farmers, making GAP standards mandatory was not such a big step: they had already instituted some of the improvements necessary to meet the criteria. In Kenya, for example, when in 2007 the Global GAP standards came into force, some exporters with reliable suppliers were prepared to share some of the costs of the new procedures (Humphrey, 2009). Vegpro in Kenya, for example — see Box J — has been prepared to help smallholder suppliers with meeting standards, documenting them, and putting in place regular systems of audit to meet the criteria.

Box J: Vegpro, Kenya: taking the lead in helping smallholders certify their production

Vegpro began in 1979 in Kenya and has become a large exporter of vegetables, fruit and flowers to Europe, including the UK. They have six of their own farms, but also since 2001 manage around 3,500 contracted smallholder farmers in Central and Eastern Provinces, organised in 50 groups. One example is the Liki-outgrowers Self Help Group who grow sugar snaps and snow peas.

Outgrowers benefit from a guaranteed market. Because vegetables must conform to specific standards, Vegpro are helping the smallholders to achieve Global GAP certification though a partnership with the USAID-funded Kenya Horticulture Competitiveness Project (KHCP). The same project plans to introduce greenhouse tunnels to growers.

Contracts have evolved: initially farmers were paid a fixed price all year, regardless of the local spot market prices. When the Vegpro prices were high, growers were tempted to sell uncertified produce from their neighbours. When the market price rose, farmers would side-sell to local traders. Vegpro reduced side-selling by employing field supervisors and switching from annual fixed prices to weekly prices set in relation to the market price.

Vegpro is expanding its work with smallholders. Both government and donors are playing facilitating roles. Furthermore, the success of the model means it is expanding in to Ghana, where they will grow vegetables better suited to Ghana than Kenya.

The main drawback is that Vegpro only work with farmers with the capacity to participate; located in some of the highest-potential land in Kenya with good access to Nairobi and the airport. Marginal smallholders do not take part. That said, the labour demands of snow peas are very high indeed — 600 days a year for each hectare have been reported for Guatemala — so it is to be expected that many additional jobs are being created locally.

Sources: International Finance Corporation, 2012; USAID, 2012; van Dijk and Trienekens, 2012; Vegpro website; USAID KHCP website.

5 Lessons for policy makers and donors

Key messages can be grouped into those about the rationale for public support to the private sector, the importance of processes, and about growth and development in general.

5.1 Why offer public support to the private sector?

It is important ***to be clear why public support may be necessary*** to encourage private investment and innovation in agriculture. Market failures justify a public response: especially when parties do not have the information — and experience — necessary to invest without undue risk. Those risks are often especially high to first movers and innovators. Public action may also be justified when private actions have external benefits not captured by the investor, or create (to some extent) public goods — such as a road or bridge that can be used by others as well as the investor.

Government failures and omissions may also justify public support to private enterprise, although it would be preferable to rectify those failures and omissions rather than working with private enterprise to paper over the cracks.

A good principle is to ***work as far up the hierarchy of issues as possible:*** that is, when possible address national conditions rather than individual projects. This economises on resources, while ensuring that systemic problems that apply across the economy or agriculture as a whole get the attention they deserve.

That said, when donors — or any other public actors — engage with government on matters of investment climate and other national issues, experience of working with the detail of practical and specific programmes makes advice and advocacy more credible (KPMG, 2012). Hence it pays to keep in mind the spectrum of activities from macro- through to micro-level actions.

Public investments and other support directly to specific enterprises raise ***questions about additionality*** — is the public support necessary to elicit private action? — not to mention the danger of giving private firms taxpayers' money as an undeserved subsidy. Conceptually, there are socially-valuable private investments that would not go ahead at all without public support, owing to high initial thresholds of capital and risk, that can be triggered by public investment. Then there are private activities that would go ahead, but which may be expanded in scale and scope to give better development outcomes by public support. Lastly there are those activities that need no public support, so that any public monies constitute an unnecessary subsidy.

Concepts are fine, but ***assessing individual projects requires information and expertise***. It helps if there is clear understanding of the rationale for support. This may be supported by specific indicators for public returns to private investment. Information is crucial. Here the private firm has a great advantage over the public manager: the firm usually has the best estimates of costs and returns — information that it can take much time and effort for a public assessor to verify. Running challenge funds helps make such assessment clearer and transparent, and puts the onus for justifying support on the private firm. This does not, however, avoid public managers having to make their own judgments.

These considerations apply to engagement with private firms in any sector, in any area. When working with smallholders in agriculture the problems are magnified, since information on rural conditions, both natural and human, is often imperfect. Will an outgrower scheme really see smallholders achieve anticipated yields, net returns? Will this stimulate further development of the local economy through multipliers? These are not simple questions to answer.

Clear initial thinking may seem obvious, but it does not always apply in practice, as a review of World Bank experience (van de Meer and Noordam, 2004) reported.

5.2 Processes: no short cuts for success

These considerations lead to the conclusion that when public actors engage in private sector development, and especially with smallholder farmers linked to formal firms, then ***public managers have to have the expertise and experience to assess, manage and monitor.*** They need some theory; they need some tools — including agricultural gross margins, cost-benefit analysis, value chain analysis, business accounts; but in practice they need experience, since principles often have to be adapted to the demands of second-best reality.

Lack of the high-level expertise needed may explain in part why public-private partnerships that have become common for donors are rarely seen for developing world governments.

Circumstances matter: what works in one place may not work in another, apparently similar, setting. Kenya's successful M-Pesa money transfers have not worked as well in neighbouring Tanzania (KPMG, 2012). Agriculture is particularly demanding in this respect, since successful farming is so much a matter of accommodation to local natural and human resources. When context matters so much, there is no escape from careful assessment of individual cases. This, of course, reinforces the value of working as far up the hierarchy of policy as is possible.

Most successful interventions result from processes: few can be designed as blueprints. Learning not only makes for success, but the experience of learning can for some actors — think leading smallholders, leaders of farmer associations, small-scale business owners such as input dealers — be a critical development outcome. Indeed, such learning is central to raising productivity in agriculture and its supply chains. Learning, however, only takes place if time and trouble is taken to monitor events, to reflect on them, and where there is space and time to react. Public programmes need to build this in recognising the value of loose-coupled management. Efficiency is not the first aim here: effectiveness is what matters. 'Market development requires time, intellectual rigour, and multifaceted interventions — not necessarily large budgets' (KPMG, 2012).

Monitoring and evaluation are critical to learning. This is obvious, yet routinely private sector engagements are imperfectly monitored, let alone rigorously evaluated (van de Meer and Noordam, 2004; Heinrich, 2013).

> Reasons behind this evidence gap are manifold, but all of them are avoidable: 'Doing partnerships' and 'honest inquiry' often appear as opposing cultures; donors rely on businesses' self-reported data, or even create adverse incentives by publicising the launch of partnerships. In addition, the justification of partnerships as "light touch" generally means that little funding is made available for results measurement. Respective responsibilities of the public and private partners may be ill-defined, and few partnerships seem to have articulated a clear logic of expected results, as a basis for regular monitoring. (Heinrich, 2013)

Running baseline surveys at the start of activities, having clear understandings of what impacts are expected are the minimal conditions required. It would be good to establish an evaluation framework at the outset that would allow subsequent evaluations to be rigorous: at very least, surveying affected smallholders and a control group before and after that might allow difference-in-differences to be assessed.

5.3 From private sector development to growth, development and poverty reduction

Private sector development invites the question of just how much it can contribute to growth, development, and poverty reduction. Experience shows that when formal firms link to smallholders, they will work first and foremost with those smallholders who have better-than-average assets — land, labour, skills and capital — and are located in better-than-average areas for natural resources and access to markets. This is to be expected: without assets and access to market it is hardly possible to produce and sell commercial surpluses. For those managing formal firms the incentive will be to work with the larger amongst the smallholders to economise on transactions.

Indeed, some formal firms only do business with smallholders since they have little alternative. This applies especially to field managers. Headquarters staff from SABMiller, which owns Eagle Lager in Uganda, are proud to see sorghum sourced from smallholders. Sourcing, however, is carried out by a contracted partner whose manager stated in a presentation: 'Sustainable long-term operations [are] at risk since production is in the hands of smallholder growers'. Of course: the SABMiller corporate social responsibility objectives are not those of the field manager who has to deliver on sorghum quantity and quality.

It is not just formal firms which may choose to work with the more advantaged smallholders. Marginal farmers may be excluded when groups of farmers are formed, since their peers in the village may leave them out deliberately for perceived lack of capability. This is particularly likely to apply when the group is jointly liable for delivering produce or repaying loans.

Hence direct links from formal firms may at most reach no more than a small proportion of all smallholder households. It would fly in the face of all reasonable expectations to pretend otherwise. Those who see multiple wins and bottom lines as automatically coming from commercial development overstate their case (KPMG, 2012).

So what does that then mean for development impact? We should not be too dismayed. ***Indirect benefits*** for the rest of the rural population often arise through multipliers in rural economies. It is likely that smallholder development will create widespread benefits by creating additional jobs on farms — horticulture and dairying, for example, have high demands for labour; in the supply chains — for instance, the pineapple juice and packing plant of Blue Skies in southern Ghana employs no fewer than 1,500 workers; and in meeting increased demand for locally-provided goods and services from smallholders with higher incomes.

Government does not necessarily have to do much to stimulate such links, since the main encouragements to private investment are an enabling rural investment climate and rural public goods that need to be in place for agricultural and rural development in general.

Beyond this, there may be ways that government can make smallholder development more inclusive of marginal farmers, by giving them assets that allow them to participate in business opportunities — for example, land, credit or education and training. Government may also help those excluded from participating in markets by forming collectives that both increase bargaining power and reduce transaction costs (Estrup, 2009).

Finally, some households cannot participate in the benefits of private sector development either directly or indirectly since they do not have workers — owing to youth, old age, disability or chronic sickness. For them, social protection will be needed.

Further reading

If there is just one brief you ever read on linking smallholders in value chains, this is the one:

> Campbell, Ruth, 2010, 'Implementation best practices for value chain development projects', **MicroREPORT #167**, September 2010, Washington DC: USAID

For a pithy statement from the private sector on investing toward the bottom of the pyramid:

> Karamchandani, Ashish and Harvey Koh, 2013, 'Goods, services and jobs for the poor', **Enterprising Solutions: The Role of the Private Sector in Eradicating Global Poverty**, The 2013 Brookings Blum Roundtable Policy Briefs, Washington DC: Brookings Institute

For specific challenges for those operating challenge funds:

> Miller, Howard, 2013, 'What practical approaches/frameworks are there for effectively delivering subsidy to private sector entities for development purposes?', Helpdesk request, Economic And Private Sector, Professional Evidence And Applied Knowledge Services [EPS-PEAKS]

For the case for patient capital:

> Palmer, Keith, 2010, Agricultural growth and poverty reduction in Africa. The case for patient capital, **Briefing**, March 2010, London: AgDevCo

The following websites provide information on some DFID initiatives to promote formal private sector engagement with smallholders:

AECF: Africa Enterprise Challenge Fund — http://www.aecfafrica.org

FRICH: Food Retail Industry Challenge Fund — www.gov.uk/food-retail-industry-challenge-fund-frich

FDT: Financial Deepening Trust — http://www.fsdkenya.org/new

SAGCOT: Southern Agricultural Growth Corridor of Tanzania — http://www.sagcot.com

TMEA: TradeMark East Africa — http://www.trademarkea.com

Some NGO and research centres specialise in establishing better links from smallholders to actors in the supply chain. Most of these sites have cases of their work:

Technoserve — http://www.technoserve.org

ACDI VOCA — www.acdivoca.org

SNV Netherlands Development Organisation — www.snvworld.org

Seas of Change — www.seasofchange.net

Agri Pro-Focus — www.agri-profocus.nl

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