TOPIC GUIDE:

Leveraging the private sector to promote agriculture and natural resource-based livelihoods

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September, 2014

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DOI: http://dx.doi.org/10.12774/eod_tg.september2014.wigginsskeatss

First published September, 2014

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- Send an email to the Evidence on Demand Editor at enquiries@evidenceondemand.org with your recommendations for other Topic Guides.

Abbreviations

AECF	African Enterprise Challenge Fund
AGRA	Alliance for a Green Revolution in Africa
BoP	Bottom of the 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
BRI	Bank Rakyat Indonesia
CAADP	Comprehensive Africa Agriculture Development Programme
CARE	An international group of NGOs, formed from the original Committee for American Relief Everywhere
Cocobod	Ghana Cocoa Board
CPRC	Chronic Poverty Research Consortium
CSR	Corporate social responsibility
DFID	Department for International Development
EAC	East African Community
EDB	Ease of Doing Business index of the World Bank
EoD	Evidence on Demand
ESA	Eastern and Southern Africa
ETA	Ethiopian Agricultural Transformation Agency
FAC	Future Agricultures Consortium
FAO	Food and Agriculture Organization of the United Nations
FISP	Farm Input Supply Programme (Malawi)
FRICH	Food Retail Industry Challenge Fund
GAP	Good agricultural practice, as in Global GAP, a private standard for supplying European supermarkets
GDP	Gross domestic product
GPS	Global positioning system
IFPRI	International Food Policy Research Institute
ILO	International Labour Organization
ISIC	UN International Standard Industrial Classification
LIC	Low income country
LIFT Burma	Livelihoods and Food Security Trust Fund Burma
M4P	Making Markets Work for the Poor
NEPAD	The New Partnership for Africa's Development
NGO	Non-governmental organisation
OAF	One Acre Fund
OECD	Organisation for Economic Co-operation and Development
OSBP	One-stop border posts
PEAKS	Professional Evidence and Applied Knowledge Services
PPP	Public-private partnership
RIMISP	Latin American Centre for Rural Development
SAGCOT	Southern Agricultural Growth Corridor of Tanzania
SF	Small-scale farmer, smallholder
SME	Small and medium-sized enterprises
SPS	Sanitary and phytosanitary standards
SUN	Scaling up Nutrition
TFP	Total factor productivity al inputs to an index of outputs
TMEA	TradeMark East Africa
WDI	World Development Indicators
WFP	World Food Programme

Glossary of terms

Basis risk	Risk that the basis of the index used to determine pay-outs in an insurance scheme does not correlate with individuals' harm. For example, low rainfall on the district gauge may not always tally with low rain on a particular farm
Bottom of the Pyramid (BoP), some *Base* of Pyramid	Bottom of the 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
Factors of production	Inputs to the production process, including land, labour and capital
Gini coefficient	A measure of inequality on a scale from zero as perfect equality to one as extreme inequality
Institutions	For economists, institutions are the 'rules of the game': agreed conventions that make the actions of others more predictable and hence reduce transactions costs and moral hazard. Some may be private, others public; most benefit from formal recognition by the state. They include those that allocate rights to land, water and other property; those that govern trading, including contract law and standards; and those that facilitate collective action, such as laws of incorporation and regulations for cooperatives
M4P	Making Markets Work for the Poor: an approach that looks at how markets can be made to work for the poor, as well as how poor people may participate to their advantage
Market failure	Economics recognises a set of conditions under which markets will either not operate at all or deliver imperfect outcomes. These include: monopoly power; public and merit goods; externalities – costs and benefits that do not accrue to parties to a deal; high transactions costs; absence of rights to property
Mono-cropping	The practice of growing a single crop year after year on the same land, without rotating to other crops
Moral hazard	The risk that the other party will act to their own advantage in violation of the spirit of the deal. This applies strongly when one party to the deal lacks information that the other party has. For example, a loan applicant may request credit knowing full well that they are about to emigrate with the funds and will never be traceable
Public goods	Goods or services that will not be fully provided by private firms since non-payers cannot readily be excluded from benefitting from the good or service. The security offered by national defence would be an example. Some public goods are also 'non-rival' in that consumption by one person does not prevent others from also consuming them, as might apply with a radio broadcast. They contrast with private goods that are both excludable and non-rival
Supply chain	For a single product, the supply chain connects input providers to producers to processors and wholesalers to distributors and retailers. It comprises all those agencies engaged in producing, processing, storing, transporting and distributing a specific product. For agricultural products, this includes activities upstream of the farm that supply inputs, tools and services to the producer, as well as those downstream of the farm where produce is processed, stored,

	transported and distributed
Supply-chain champion	The person or entity within a supply chain that leads in coordination of activity within the chain. Champions typically appear at critical points in the chain with the resources and interests to ensure coordination. They may have market power on the one hand, but on the other it may be in their own interests to invest in making the chain work. Not all chains have a champion, but they are increasingly likely in more sophisticated chains
TFP	Total Factor Productivity: A measure of productivity comparing an index of inputs to an index of output
Transactions costs	The costs of doing business: obtaining information prior to the deal; negotiations over deals; and monitoring implementation of agreed actions These are particularly high when transactions are deferred in time, as applies with lending or insurance
Value chain	Two related definitions apply. One, a value chain may be the supply chain for single product, augmented by providers of ancillary services to firms directly in the chain, such as banks, transporters, providers of technical and market information, packaging firms, etc. Two, a value chain may refer to a collection of supply chains for clusters of related products or industries, rather than a single product. The two are related since the ancillary services in the former definition usually provide services to more than one product, and hence apply to value chains in the wider definition. Value chains studies can identify where value may be added within the chain, and the different ways in which value may be added. They can also examine the competitiveness of particular industries

Acknowledgements and disclaimer

Many thanks to those who we interviewed for this paper, including: Hedwig Bruggeman, Agri-ProFocus; Martin Evans, agribusiness consultant; Keith Palmer, AgDevCo; Anthony Pile, Blue Skies; Prashant Rana, Swisscontact; Don Seville, Sustainable Food Lab; and Mark Thomas, FRICH. Thanks also to Chris Penrose Buckley and Yolande Wright at DFID, Polly Gillingham at Evidence on Demand and Frank Ellis of the University of East Anglia for many helpful comments on an earlier draft.

The views expressed in this paper do not necessarily reflect those of our informants, or those of DFID or ODI.

Summary

1. Introduction

For the benefit of Livelihoods Advisers in DFID, this Topic Guide sets out the issues arising when stimulating private investment and initiative to the benefit of small-scale and informal farmers, fishers and herders. Four sets of questions are addressed, namely:

- What is known about agricultural growth that reduces poverty, hunger, inequality and conserves the environment? What are the respective roles of the public and private sectors for such agricultural development? To what extent do policies and investments need to distinguish between different households? [Section 2]
- How are recent DFID-supported initiatives to foster private investment and innovation in agriculture – such as TradeMark East Africa, New Alliance for Food Security and Nutrition, Financial Deepening Trust, LIFT Burma, AECF, FRICH, Katalyst, FoodTrade and SAGCOT – situated in relation to these roles? How much is known about the effectiveness of these and other initiatives to foster private investment and innovation in agriculture and natural resources in promoting development objectives? [Section 3]
- What needs to be done to ensure that these initiatives have development impact, and avoid potential pitfalls? [Section4]
- What should DFID advisers thus consider when assessing these and other possible initiatives? [Section 5]

This Guide has two related companions. One is the report '*Leaping and learning: linking smallholders to markets'* (Wiggins and Keats 2013a) which examines the ways in which smallholders in Africa link to markets. It includes 29 cases, some of which are referred to in this Guide. The other, even more closely related publication is the EPS PEAKS Topic Guide '*Smallholder engagement with the private sector'* (Wiggins and Keats 2014). This also includes cases that are referred to in this Guide. More than that, it has additional detail of the initiatives recently seen to engage smallholders with formal firms. Those needing such detail should refer to this companion Guide.

2. Framework: private activity and livelihoods based on natural resources

Public action to encourage private investment and innovation for agriculture and associated activities has three dimensions, as follows:

- The state needs to set an enabling rural investment climate, with peace and security, macro-economic stability, predictable policy and basic economic institutions. The investment climate does not need to be perfect: the critical point is to avoid gross failings – such as the very high levels of effective taxation ('negative protection') seen in parts of Africa in the 1970s and early 1980s;
- The state needs to provide rural public goods – roads and other physical infrastructure; education, health and clean water; agricultural research and extension. These usually more than repay their costs;
- Some rural markets, such as those for inputs and financial services, fail chronically owing largely to the high costs of information to both buyers and sellers. Other market failures that deter investors include high initial investment costs that pay off only in the long run and high costs of learning for first movers: socially the investments make sense, but commercially they are either risky or too costly.

In both cases, the state needs to act to reduce the market failure. As will be seen, however, straightforward and simple remedies are elusive. Responses are summarised in Table A.

Table A Stimulating private activity for agriculture and other natural resource based livelihoods: state role and private institutional innovation

Reasons for public and private action	**Responses that could stimulate private-sector activity**
MACRO [National] **The need for an 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]
	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 [Regional] **The need to create rural public goods**	
	Invest in physical infrastructure Public-private partnerships
Market failures: imperfect and asymmetric information, thresholds for investment, monopoly power, externalities	Mitigate rural market failures, especially in agricultural inputs and rural finance
MICRO [Local] **– Failures specific to particular investments**	
Uncertainties, risks and short time preferences of private individuals and firms	Reduce risks – underwrite potential downsides • Micro insurance, indexed weather insurance for farmers • Loan guarantees for banks
High initial costs of physical infrastructure and, of trial and error in improved techniques and arrangements, may create external benefits and public goods Thresholds of activity may trap individual actions at low level equilibria, preventing economies of scale and scope	Stimulate investment: ensure that potentially profitable opportunities get the capital they need, and that investments that generate external benefits for low income households take place. Public counterpart investment may then lever in private investment and know-know through grants, soft credit, development debt, commercial debt and equity. • Patient capital: public capital on concessional terms with long-term repayment • Challenge fund grants
Encourage private institutional innovation: see immediately below	• Regulate contracts between firms and smallholders • Confer monopoly rights to processors, exporters to buy produce within a stated area • Provide technical support and training to farmers wishing to associate and act collectively
	Response: Private institutional innovation
Individual formal firms in the supply chain – usually processors, wholesalers, supermarkets and exporters – take private action to deal with information failures and reduce risks when dealing with smallholders	Contracting: encourage processors, wholesalers and exporters contract smallholders to grow produce, with agreements that may cover sales as well as provision of inputs and technical advice on credit
	Group farmers together in associations and cooperatives to economise on transactions costs, and (possibly) gain market power

Reasons for public and private action	Responses that could stimulate private-sector activity
	Local agents: use staff based in villages and rural market centres who know the character and competence of potential clients, thereby reducing costs of obtaining information
	Facilitate introductions between potential partners
	Assist smallholders to meet standards and otherwise engage with larger-scale actors in the supply chains

3. Engaging the private sector

This section sets out ways to stimulate formal firm engagement with agriculture, responding to the principles set out in Section 2.

To improve the rural investment climate, interest is mounting in indicators to benchmark the business environment for agriculture. Several programmes exist to facilitate and stimulate trade amongst neighbouring countries. The considerable potential for cross-border trade in agricultural produce in Africa typically has yet to be realised.

The provision of public goods is generally not a technical challenge, but more a matter of funding. Interest has thus focused on how to augment public funds and know-how with private sector capital and expertise through private-public partnerships. Given how demanding these are to establish and implement, there may not be that much potential.

Remedying market failures that leave most smallholders with poor access to inputs and virtually no access at all to finance and insurance, is a major challenge. They may, of course, be bypassed by direct state provision of inputs and finance, despite the high cost of such intervention in the past. The recent wave of fertiliser subsidy programmes in Africa that involve public distribution of inputs reflects impatience with free markets.

The alternative to direct state action is institutional innovation. Not only do they usually involve less public cost, but they are also more likely to stimulate private activity. Some innovations rely on some early support from public agencies (NGOs, donors, foundations and government), such as:

- Development of rural financial and insurance markets through agency banking, loan guarantees and index insurance;
- Training of farm input dealers; and,
- Levering in private investment through matching grants, patient capital and by simply introducing smallholders to investors.

In other cases, where business returns justify the extra effort, innovative arrangements have been worked out primarily by firms and farmers, including:

- Contracting smallholders, often with interlinked deals that offer credit and technical assistance up front;
- Grouping farmers in associations or using local agents to reduce transactions costs; and,
- Certification of smallholder production to meet supermarket, organic and fair trade standards.

Not that much evidence exists on the performance of these innovations, or on the conditions under which they work. That said, some are more widely applicable than others. Schemes like contracting do not generally have wide application — owing, for example, for the need to

limit side-selling, but when they do apply, there are proven models with potentially high benefit to participating smallholders. On the other hand, there are schemes that might be more widely applied with considerable benefit, such those that provide direct services to farmers through quasi-commercial schemes (e.g. One Acre Fund). Models in these cases, however, are less well known. Moreover, they may require public support, at least initially.

Can successes be scaled up or otherwise replicated? Commercial schemes will be taken to scale as and when business opportunities permit. Schemes that require public support face challenges. One is to distinguish between the general principles that allow schemes to work, and those features that are contextual. Another challenge is that most schemes need tailoring to circumstances, with successful schemes being developed through trial and error, where learning and a willingness to change matter. Finally for some initiatives with high potential to reduce poverty, some public subsidy may be both necessary and justified by their impact on poverty. Determining how much subsidy may be needed, however, may not be easy.

4. Development impact: accentuating positives and avoiding harm

A prime route from more intensive and commercial small-scale farming to reduced poverty and hunger arises from the creation of additional – and more productive – jobs on farms, in the supply chains, and generally in the rural economy, as multipliers in consumption create demand for local services.

Choosing labour-intensive activities – but those with higher productivity – and choosing crops that require local processing will help create employment. Stimulating rural non-farm activity will ensure linkages. Fortunately, most of what is needed to do this forms part of the agenda of agricultural development – improving the investment climate, generating public goods and tackling failures in financial markets.

Private sector development alone will not necessarily be socially inclusive. Commercial firms are likely to work first and foremost with the better-placed smallholders – and with male farmers.

Some marginal farmers can be helped by public support to increase their chances of inclusion. Again, fortunately, the basics needed for agricultural development, plus, above all, remedying market failures, are all the more important for marginal farmers – since they are least able to cope with deficiencies and failing markets.

Not all of the marginalised can be included. Hence measures to stimulate the rural non-farm economy matter. For some, the non-working poor, social protection has to be available.

Women are often at a disadvantage when commercial opportunities beckon: they are on the back foot for lack of land, water, time, education and social links and are fettered by social norms with regard to their mobility and interactions with (male) traders.

Much can be done to remedy these disadvantages, by paying attention to women's strategic and practical needs in agricultural development – for example, by choosing crops they can grow, by employing female extension agents, by forming women's groups, by developing technologies that save women time, etc. Allowing women to participate equally with men can be hugely socially beneficial. Child nutrition, for example, responds much more to women's incomes and status than it does to men's.

While more commercial small-scale agriculture may generally be good, there are concerns about potential drawbacks, some of which may only affect a minority, but often the poor and vulnerable who cannot afford any losses. Risks include potential loss of land and water, exploitation of labour, reduced food security, higher risks in markets and environmental

damage. None of these are inevitable, but careless and unwise interventions could lead to such harm.

5. Key messages for advisers and policy makers

Promoting economic growth based on private enterprise

Basic conditions matter for agricultural growth
It is easy to see agricultural growth as unusually demanding, or just plain difficult. That is understandable: agriculture is often expected to achieve a wide range of goals – economic growth, job creation, reduction of poverty, conservation of the environment and reduction of inequalities by social group, gender and region. Given physical variations, specific measures likely to stimulate agriculture will similarly vary. No single detailed blueprint exists for agricultural development.

That said, the importance of basic principles should not be ignored. It is hard to find a low income country (LIC) where the basics are in place – a reasonably enabling rural investment climate, a supply of rural public goods commensurate with the income level, and basic economic institutions – which has not seen agricultural growth exceed population growth. Almost all of the countries in the world with the fastest-growing agricultural sectors in the last two decades have been in developing countries; among these, LICs are prominent.

Private enterprise has to realise returns
Formal firms will work in agriculture and with smallholders provided the activities give reasonable returns to capital, labour and land. The same applies to small-scale producers contemplating working with formal firms. It helps if there are relatively simple ways to raise agricultural productivity, above all in returns to labour. It may be obvious, but given how many initiatives founder due to low returns, it bears repetition.

Returns may not necessarily be high enough at the start of any initiative: indeed most agricultural development projects, private or public, contemplate improving productivity, or raising output prices at the farm gate – by, for example, reducing transport cost to market, or lowering the cost of inputs. But there needs to be a reasonable expectation of attractive returns in the near future.

Market failures represent a great challenge – but offer great rewards …
With frequent and serious market failures in rural areas of LICs, it is no surprise that so many of the private initiatives and investments that engage smallholders include institutional arrangements designed to overcome some of these market failures. Of the market failures that arise, those in financial services are often the most challenging. It is not for nothing that formal rural financial services are so lacking across so many LICs.

Since market failures usually hit the poor harder than most, correcting these failures can be especially effective in translating growth into poverty reduction.

… learning processes are the way to overcome them
Few arrangements to tackle market failures can be blueprinted. Even if there are models that can be imitated in outline, the detail needs tailoring to cases and, as circumstances change, may need further adjustment. Experienced managers thus stress the importance of the processes of active learning. This implies committing to making initiatives work over five or more years. Leaders and managers need to monitor emerging outcomes, then judge whether divergence from expectations indicates either natural variance that will correct itself given time, or something that requires change.

Someone has to lead these processes. It may be someone in business, but formal firms are only likely to lead when the opportunity promises sufficient rewards and when there is no simpler way to obtain these. Public schemes may be able to provide incentives to private firms to do this, or may instead pay others to champion processes. Investing in such intermediation may pay off. The rise of the challenge funds reflects this hypothesis, as does the existence of the several NGOs – such as Technoserve, SNV Netherlands, CLUSA, etc. – whose core business is championing linkages with a strong focus on creating sustainable businesses.

Forums that bring together key stakeholders, above all firms and the producers they deal with, can make a difference. Institutional arrangements – by definition – concern stable expectations that form when parties to a deal share perspectives and trust one another.

Inclusion and representativeness

Do not expect too much commercial engagement with marginal farmers.

Agricultural growth where smallholders are central usually leads to growth with poverty reduction. Direct inclusion of small-scale producers in commercial schemes may, however, be limited; buyers prefer to deal with large farmers or failing that with the better-placed smallholders, while marginal farmers find it difficult to fulfil contracted production.

Thus expectations of inclusion should not be set too high, and especially when dealing with production for high-value and export markets. In the medium term, it is unlikely that more than a small fraction of producers in LICs will be part of such supply chains. In part this is because participation demands so much, but mainly it is because these markets are relatively small.

Most smallholders, at least in the near future, will remain informal enterprises connected to other small-scale, informal firms in supply chains. Hence, working to resolve the problems that affect informal markets matters. Schemes that develop domestic supply chains where informality is rife and where staples dominate the produce traded are less common than those for higher-value produce. However, they do exist, and some show promise. One Acre Fund is a prime example.

Most smallholders in Africa probably already live in peri-urban areas; commercialising locations are not exceptional.

Many of the examples of innovative arrangements seen and mentioned here come from places with not only reasonably good natural resources, but also with good access to cities and ports – most are peri-urban. So how representative are they? Perhaps more than some think.

These peri-urban areas may comprise only a minority of the territory of most LICs: but owing to population concentration, more rural Africans live in these areas than outside them.

Commercial small-scale farming may thus become more inclusive, even if not it does not reach all.

This is good news for inclusion in more commercial arrangements. Of the conditions that condemn some smallholders to marginality, location is perhaps the most constraining. Limited access to capital, skills and even land and water are less binding. Hence there are possibilities that those smallholders who have the means to take up new opportunities will be joined by others, especially if public policy aims to increase the assets of the marginalised.

This is not, however, to suggest that all or most smallholdings might become commercial. On the contrary, in the coming decades we can expect – assuming that urban economies grow and thrive – rural people to leave agriculture.

Learning lessons and scaling out

What do we know about the suite of initiatives to stimulate formal private engagement with agriculture funded by DFID over the last five or so years – enterprise challenge funds, financial deepening, trade facilitation, etc.? Most are so recent that at most there are mid-term reviews, but no evaluations of outcomes and impacts. Hence we can only comment on intent and actions rather than outcomes.

It is good to see these DFID initiatives addressing a major challenge with potential both to raise growth rates and to reduce poverty.

Governments, above all in Africa, however seem lukewarm towards these ventures. The challenge funds or similar initiatives have not yet been copied. It will be interesting to see if the passive acceptance of these programmes by governments changes to enthusiasm as and when these initiatives demonstrate results.

Replication and scaling out: working models are emerging

The importance of processes over models can be overstated. Some models are prospering, operating on a scale that means they have passed from being (costly) pilots, which seek only effectiveness, to working models that pass the test of efficiency as well, and, hence, are ready for widespread replication. There is work to do to document working models, and to identify those pilots that deserve to go to working scale.

SECTION 1

Introduction

1.1 Aims and approach

This Guide sets out the issues arising when stimulating private investment and initiative to the benefit of small-scale and informal farmers, fishers and herders. The key question the Guide addresses is:

> *'What does a Livelihoods Adviser need to know about promoting markets and the role of the private sector to ensure that private sector focused programmes and policies in the agricultural and natural-resource sectors have a positive impact on poor smallholders and workers' livelihoods?'*

Four sets of questions are addressed in this Guide, namely:

- What is known about agricultural growth that reduces poverty, hunger, inequality and conserves the environment? What are the respective roles of the public and private sectors for such agricultural development? To what extent do policies and investments need to distinguish between different households? [Section 2]
- How are recent DFID-supported initiatives to foster private investment and innovation in agriculture – such as TradeMark East Africa, New Alliance for Food Security and Nutrition, Financial Deepening Trust, LIFT Burma, AECF, FRICH, Katalyst, FoodTrade and SAGCOT – situated in relation to these roles? How much is known about the effectiveness of these and other initiatives to foster private investment and innovation in agriculture and natural resources in promoting development objectives? [Section 3]
- What needs to be done to ensure that these initiatives have development impact, and avoid potential pitfalls? [Section4]
- What should DFID advisers thus consider when assessing these and other possible initiatives? [Section 5]

1.1.1 Defining natural resourced-based livelihoods and the private sector

To begin, some working definitions are needed.

Natural resource-based livelihoods are taken to be those derived from renewable natural resources, above all land and water. Not covered in this Guide are minerals, oil and gas – non-renewable natural resources worked by extractive industries (see PEAKS Topic Guide: Dietsche et al. 2013). Specific activities comprise crop farming, livestock raising, aquaculture, capture fishing and forestry. These make up Divisions 01, 02 and 03 of the UN International Standard Industrial Classification (ISIC)[1]. 'Agriculture' is sometimes taken to encompass all these activities. For example, the much used World Development Indicators of the World Bank include all these activities when reporting the value of agricultural production.

[1] ISIC 01 = Crop and animal production, hunting and related service activities; 02 = Forestry and logging; 03 = Fishing and aquaculture.

The degree of management of the resources varies. Some activities involve deliberate production of crops and animals, while others harvest, through hunting (for example capture fisheries) and gathering (for example cutting timber) natural resources that may or may not be managed to improve the harvest.

Households and enterprises engaged in these activities are primary beneficiaries. Other households form part of the system as well. Those who work for wages in companies are one group. So too are those who work in supply chains providing inputs to such enterprises, or those who collect, store, process and distribute the produce. Yet others may benefit at an additional remove, being those who provide goods and services to those working directly with the natural resources such as local businesses and artisans.

Most livelihoods that are based on land and water involve the production of food – crops, livestock and fish. The main exceptions comprise crops destined for industry, such as cotton, animal skins for leather, and timber and other forest products for manufacturing and construction. Less prominent in developing countries, but increasingly important, is management of land and water for cultural, recreational and environmental services. Since food dominates, most references in what follows will be to food producers.

The private sector can be defined broadly as consisting of enterprises that aim to earn returns on capital, labour and land commensurate with the opportunity costs of those resources. For natural resource-based activities then, the private sector runs the gamut of formally incorporated businesses of varying scales, some of which operate in more than one country, to informal businesses and household enterprises, such as (small-scale) farming, herding, hunting and gathering.

Household enterprises often have objectives other than returns on factors of production. These objectives would include the security of self-provisioning, of continuing to work the lands held by the family, and of belonging to a community where working with land and water confers identity and purpose to life. Just as with multinational companies, however, if households cannot realise reasonable returns to their land and labour, they will not survive long.

A narrower definition of the private sector would include just those firms that exist formally, with legal recognition: firms that usually also hire labour and often do so at scale. Where ‘private sector’ is used in this sense, the term ‘formal firms’ is used.

1.2 Background

1.2.1 Brief history of agricultural development in Africa

Efforts to promote the livelihoods of households who derive most of their incomes from land and water – as farmers, herders, foresters and fishers – are long-standing in Africa.

The colonial era that began in the last quarter of the nineteenth century saw new opportunities for farmers in Africa to meet the demand in recently urbanised and industrialised Europe for products such as cocoa, groundnuts, palm oil, rubber and sisal. The link to Europe created a ‘vent for surplus’. During the twentieth century, exports of cotton, coffee and tea were added.

Although some produce came from plantations, estates and settler farms (mainly in Angola, Kenya, Mozambique, South Africa and Zimbabwe), the bulk of export crops came from local

small-scale farms. These were usually linked to supply chains in one of two ways. In some cases, private trading houses set up networks of buyers to source from small-scale farms. This was generally the earliest model seen.

With time, however, an increasingly frequent alternative was to establish a public marketing board to organise the buying, grading, processing, storage and shipment of produce. The boards were often granted monopoly powers to make sure that production response was forthcoming – colonial administrations needed sources of revenue, and taxes on exported crops were an important source – and to ensure that quality standards were met. Many boards went a step further, supplying to farmers external inputs, such as seed, planting material and agro-chemicals, as well as technical advice on production and standards. Hence, although production on farm remained a private business, these household enterprises were often developed with extensive public support and tutelage.

By the 1960s, when much of Africa regained its independence, most colonial territories were exporting a few prominent commodities to the European market. Producing areas were often relatively well endowed with roads and market centres where local commerce thrived based around the export supply chain and farmers spending their cash incomes. These patterns persisted and indeed intensified in the first two decades of independent Africa[2].

Increasingly, marketing boards were used for food as well as for export crops. Expectations of the boards were sometimes broadened, unrealistically so, with the agencies being expected to achieve additional social goals, such as providing jobs and promoting regional equity by servicing distant districts with subsidised transport costs. At the same time, treasuries looking for ways to finance new public investments saw the boards as cash cows, so that cesses and taxes on export crops often rose.

By the late 1970s many of the marketing boards were accumulating unsustainable losses, owing to the pursuit of costly social goals and lax management that lacked incentives to economise. When structural adjustment was introduced from the early 1980s onwards, most of the boards were either closed down or had their remits drastically trimmed. Henceforth African farmers who had previously delivered produce to public buyers found themselves dealing with private buyers in an open market, and with private dealers when they needed access to inputs.

It was hoped that the retreat of the state and with it the reduction in the net tax burden on farmers, combined with the liberalisation of markets, would lead to farmers getting better prices at the farm gate – which often was the case. It was also hoped that they would pay lower prices for inputs from private dealers.

In reality, in much of Africa, private businesses did not rush in to replace the functions of the defunct marketing boards. With banks unwilling to finance working capital, on account of uncertainty over farmers' credit-worthiness, formal credit became unavailable to most smallholders. High transport costs to rural centres has meant seed and fertiliser are obtainable only at high cost and with limited choice. Only those farmers engaged in forms of contracting where the processor or buyer has provided inputs, and those located in peri-urban areas where costs of distribution are low and returns to farming are often high, have escaped this blockage.

2 The exception to persistence was that some countries tried to set up state farms. In most cases they were short-lived, foundering on the diseconomies of scale in farm management, political interference in management, lack of incentives for managers in public service and shortage of competent managers.

1.2.2 Current concerns

Hence, for many family farmers in Africa, their enterprises remain under-capitalised with low use of external inputs, which stymies innovation and higher productivity. The reasons for this and, hence, potential solutions are debated, with at least four sets of explanations standing out, as follows:

- Returns to intensified production are not sufficiently high to warrant investment, owing to insufficient technical productivity, itself a result of variable rains, poor soils, and lack of appropriate technology both for staples favoured in Africa and for rainfed areas;
- Returns not sufficiently attractive, owing to high transport costs that inflate the price of inputs in local market centres and depress prices at the farm gate. Limited demand in domestic markets holds down the prices offered in any case;
- Unpredictable and erratic government policy deters investors who fear that controls on trade, seizure of stocks, price controls and the like will lead to losses;
- High transactions costs (largely costs of information on services on offer) and the character and competence of other parties to business deals (see Section 2.2 for more explanation) in markets for inputs and finance, reduce both supply and demand, thereby driving up prices and limiting quantities traded.

In a large continent of diverse environments, all of these explanations probably apply somewhere or other, and probably in some combination as well. The last explanation is the one that this Guide will focus on, because some of the limitations signalled in the other arguments may be increasingly less strong. For example, proven improved technology exists by now for many crops and environments, transport costs come down with better roads and logistics, and public policy is often more predictable than in the past. This leads to the next point.

Although the problems of agricultural development are long-standing, the context is not. In the last decade the prospects for farmers and others using land and water in low income countries (LICs) have changed. Significant developments include the following:

- Growth of demand. In the past, food producers in Africa faced limited effective demand for their surpluses, but that is changing. Increasing population, but above all urbanisation – albeit slow and uneven across countries (Potts 2012) – and rising incomes (Radelet 2010), mean that farmers, fishers and herders today can sell more and often at higher prices than before. Indeed, the domestic markets of many LICs in Africa show quite rapidly rising demand for food, especially higher-value items, such as meat, fish, dairy, fruit and vegetables.

  Furthermore, prices of food and all agricultural commodities have risen on world markets, partly in response to surging demand in Asia for imported foods, especially animal feed and vegetable oils. Hence exporting to old markets in Europe and North America has become more attractive, while the potential of exports to Asia becomes an ever-more tantalising prospect.

  This should not be read to mean that demand is unlimited. Domestic markets in LICs remain thin with limited storage so that any glut of production can trigger a sharp fall in price. Opportunities for export of high-value non-traditional items, such as flowers, are limited. The point, however, is that these limitations are less than in the past, and can be expected to diminish in the future as demand grows – and quite rapidly in domestic urban markets;

- Improved supply chains. More supply chains are being organised by large-scale food firms – processors, exporters and retailers based in Europe – who are sourcing from LICs to find either unusual and highly prized foods, or simply supplies at lower cost, especially during the northern hemisphere winter. To serve these chains, producers need to supply on schedule, in quantity, to consistent and high standards, and often need to show compliance with food safety and working conditions through documentation and certification. Further certification applies for food that is organic and that which is fairly traded. While these conditions may be difficult to meet for many smallholders, for those that can there are premium prices on offer – and sometimes support from those organising the chain to improve production techniques and to access seed, fertiliser and other inputs (Reardon et al. 2009, 2012, 2013).

  Across the developing world, supermarkets are taking an increasing share of food retailing. They also demand suppliers who can provide consistent, good quality produce on time. While they may not yet dominate food sales in LICs, their share of trade is rising and can be expected to continue to do so.

  This point, however, should not be exaggerated. The large majority of producers in Africa still deal with informal traders in supply chains who pay lower prices, but are relatively undemanding of quality, quantity and timeliness;

- Rising costs of fuel and fertiliser. In the past, the cost of fuel and fertiliser at the border of most LICs was relatively low. Since the mid-2000s, oil prices have risen considerably – from as little as US$20 a barrel to US$100 a barrel or more – and with them the cost of nitrogenous fertiliser. Transport costs have been pushed up by higher oil prices. In contrast, in some countries such as Kenya, improved logistics in fertiliser distribution has largely offset price rises at local dealers in rural market centres (Ariga and Jayne 2009);

- Above all, public interest in stimulating food production has never been greater. At the turn of the new century, setting the first Millennium Development Goal to halve poverty and hunger directed attention to where the poor and hungry live. This is overwhelmingly in rural areas where agriculture is usually the largest source of livelihoods and jobs. When African agriculture ministers met in Maputo in 2003 they agreed to aim for a 6% annual growth in agriculture and to assign 10% of government budgets to that end. This led to adoption of the NEPAD/African Union-led Comprehensive Africa Agriculture Development Programme (CAADP) as a way to translate these intentions into operation. Development partners have similarly shown renewed interest in supporting LICs in these efforts, as have some private foundations, such as The Bill & Melinda Gates Foundation. The Alliance for a Green Revolution in Africa (AGRA), funded by donors and private foundations, is one manifestation.

  The spike in cereal prices on world markets in 2007–2008 and subsequent price surges in 2010 and 2012 surprised leaders across the world, reminding them that sufficient food production to meet consumption needs could not be taken for granted. Consequently there have been several international initiatives to mobilise more capital for agriculture. At the L'Aquila summit of the G8 in July 2009, followed by the G20 meeting at Pittsburgh in September 2009, leaders promised US$22 billion for agriculture, rural development, food security and nutrition.

  At the same time, some private companies, as well as the state enterprises of countries in the Near East and Asia, have sought to obtain land in Africa, Latin America and South-East Asia to invest in food production. While additional capital

and know-how may be welcome, there has been concern that large-scale farming might lead to large-scale dispossession of the land of smallholders and herders.

- There has been a corresponding rise in interest during the 2000s in nutrition, marked by new initiatives such as the Thousand Days[3] and Scaling up Nutrition (SUN) movement. This has led to increasing calls for an agriculture that not only produces food, but also produces food with more micro-nutrients and in ways that improve the access of poor people to nutritious food (Wiggins and Keats 2013b);

- On a less positive note, while by the end of the 1990s much of the effective taxation ('negative protection') of farmers had been removed in Africa, and the state had retreated from wholesale interventions in rural markets, it has proved difficult in some countries to resist the temptation to re-intervene when it seems that something has to be done. Restrictions on exports of food staples when harvest failures push domestic prices up, controls on trade and storage of essential foods, and the re-introduction of subsidies on fertiliser and other farm inputs have been seen frequently in the new century. In some cases, changes have been made with little warning, creating uncertainty for farmers and firms in the agricultural supply chain;

- It is increasingly recognised that in the future agricultural development has to see agriculture, herding, fishing and forestry become environmentally sustainable and 'climate smart', that is, adapted to a changing climate, and mitigating emissions of greenhouse gases.

1.3 What follows

The next section in this Guide (Section 2) sets out a framework for thinking about the issues of stimulating private sector action for the development of agriculture and similar activities using land and water. The framework also covers the impacts on welfare of households involved directly and indirectly with such activities.

The third section looks at specific policies and investments that seek to stimulate private activity. The fourth section considers how these activities may reduce poverty, as well as the potential pitfalls by which they might do harm.

The final and fifth section summarises the argument in a set of key points for advisers and policy makers. A guide to additional sources of material appears at the end.

1.4 Reading this Guide

This Guide has two related companions. One is the report '*Leaping and learning: linking smallholders to markets'* (Wiggins and Keats 2013a), which examines the ways in which smallholders in Africa link to markets. It includes 29 cases, some of which are referred to in this Guide. The other, even more closely related publication is the EPS PEAKS Topic Guide '*Smallholder engagement with the private sector*' (Wiggins and Keats 2014). This also includes cases that are referred to in this Guide. More than that, this has additional detail of the initiatives recently seen to engage smallholders with formal firms. Those needing such detail should refer to this companion Guide.

[3] An initiative focusing on ensuring good nutrition over the 1000-day window beginning with conception and going to a child's second birthday.

SECTION 2

Framework: private activity and livelihoods based on natural resources

This section addresses two questions:

- How can the development of agriculture and other livelihoods based on natural resources be stimulated?
- What is the potential role of the formal private sector in this?

Broader questions of how agricultural development affects poverty, hunger, inequality and the environment are addressed in other publications, including the DFID Agriculture and Growth Evidence paper on Agriculture and Poverty. Appendix B provides a brief introduction to these issues.

2.1 Principles of public and private roles

In a market economy, most economic activity is privately organised by households and firms. These undertake enterprises according to:

- Their access to resources – including those owned, such as land and household labour, plus those obtained from the market, such as additional labour, industrial inputs and machinery;
- For inputs acquired from the market, their access to investment and working capital, either from savings or on credit;
- Their skills, technical knowledge and knowledge of markets;
- The expected demand for output in the market.

Private initiative, in search of profit and other rewards that confer utility, then becomes the driving force that determines investment and innovation, leading to higher productivity with improved returns, and usually more jobs[4].

The role of the state is then to set the overarching conditions that allow businesses and markets to operate, to invest in public goods, and to otherwise correct or mitigate market failures. These latter may also be addressed by private firms and collectives, through innovative arrangements ('institutions' in the sense of the 'rules of the game').

Public actions apply at macro (national), meso (regional) and micro (local) levels; while most private actions are micro, being specific to particular supply chains. Table 1 uses these categories to summarise the reasons for state and private action, corresponding actions commonly seen and some examples, which will be described in this Guide. After the Table,

[4] Innovation may see machinery substituted for labour, but this usually only occurs when machinery is relatively cheap compared to labour, conditions that do not often apply in low income countries. Labour savings within the firm may, however, be countered by increased hiring elsewhere; machinery, for example, requires labour to build it, and more pertinently, to maintain and service it.

these are set out in more detail, following the scheme presented, with the rationale explained in this section, and the responses in the following Section 3.

Reason	Responses	Examples
MACRO [National] **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]	Measuring the investment climate: • Doing business indicators [World Bank] • Benchmarking agriculture [World Bank] Trade facilitation: • TradeMark East Africa • FoodTrade ESA
	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 [Regional] **Rural public goods**		
	Invest in physical infrastructure Public-private partnerships	• Southern Agricultural Growth Corridor of Tanzania (SAGCOT)
Market failures: imperfect and asymmetric information, thresholds for investment, monopoly power, externalities	Mitigate rural market failures, especially in agricultural inputs and rural finance	• Financial Deepening Trust, Kenya • Katalyst training of agricultural input dealers
MICRO [Local] **– Failures specific to particular investments**		
Uncertainties, risks and short time preferences of private individuals and firms	Reduce risks – underwrite potential downsides • Micro insurance, indexed weather insurance for farmers • Loan guarantees for banks	• Financial Deepening Trust, Kenya • Century Bank, Uganda
High initial costs of physical infrastructure, of trial and error in improved techniques and arrangements, may create external benefits and public goods Thresholds of activity may trap individual actions at low level equilibria preventing economies of scale and scope	Stimulate investment: ensure that potentially profitable opportunities get the capital they need, and that investments that generate external benefits for low income households take place. Public counterpart investment may then lever in private investment and know-know through grants, soft credit, development debt, commercial debt and equity • Patient capital: public capital on concessional terms with long-term repayment	• AgDevCo: Chiansi irrigation, Zambia
	• Challenge fund grants	• African Enterprise Challenge Fund (AECF) • Food Retail industry Challenge Fund (FRICH)

Reason	Responses	Examples
Encourage private institutional innovation: see immediately below	• Regulate contracts between firms and smallholders • Confer monopoly rights to processors and exporters to buy produce within a stated area • Provide technical support and training to farmers wishing to associate and act collectively	
	Private institutional innovation	
Individual formal firms in the supply chain – usually processors, wholesalers, supermarkets and exporters – take private action to deal with information failures and reduce risks when dealing with smallholders	Contracting: processors, wholesalers and exporters contract smallholders to grow produce, with agreements that may cover sales as well as provision of inputs and technical advice on credit	• Illovo sugar cane, Malawi • Eagle Lager, sorghum, Uganda • Blue Skies, pineapple, Ghana
	Group farmers together in associations and cooperatives to economise on transactions costs, and (possibly) gain market power	
	Local agents: use staff based in villages and rural market centres who know the character and competence of potential clients, thereby reducing costs of obtaining information	• Dunavant cotton, Zambia Agency banking: • Financial Deepening Trust, Kenya • Bank Rakyat Indonesia's micro-banking
	Facilitate introductions between potential partners	• Linking Local Learners, PRIDE Africa • Learning Journeys, Sustainable Food Laboratory
	Assist smallholders 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 out-growers, Malawi

Table 1 Stimulating private activity for agriculture and other natural resource based livelihoods: state role and private institutional innovation

2.2 Public roles to encourage private initiative

2.2.1 An enabling rural investment climate

At the national level, the state needs to establish an enabling investment climate. The basic[5] elements of an enabling investment climate consist of:

- Establishing and maintaining peace and security. Public order and absence of conflict are obvious elements here. To these may be added a reasonable level of stability in public policy, which allows investors to plan, as they have stable expectations of the policies in the future that will affect outcomes;
- Managing the macro-economy for stability and growth. Key issues include keeping inflation at modest levels; ensuring the exchange rate is competitive to avoid over-valuation of the currency that puts sectors producing tradables at a disadvantage; and holding interest rates at levels that allow businesses to use formal finance for their operations;
- Reforming regulations where they make it difficult to do business and where they have little social justification – especially the regulations that govern the details of trade;
- Establishing, reforming or underwriting existing basic economic institutions – those that assign property rights, reduce risks in business and allow collective action (Wiggins and Davis 2006).

Evidence of the importance of an enabling investment climate tends to be seen in its absence. For example, in the 1970s in many African countries, farmers 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. However, most of the cost came (1) from overvalued exchange rates that penalised producers of tradable goods and (2) 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 a lot worse for export crops than for food staples. 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.

Under such conditions, agricultural production in Africa in the 1970s grew more slowly than population. When in the 1980s and 1990s economic reforms saw the burden on agriculture relieved in most African countries, agricultural production revived – albeit not as strongly as hoped, owing in part to rural market failures.

China provides an extraordinary example of the benefits of improving the rural investment climate. Before 1978, most Chinese farmers worked the land in communes at the level of production teams. It was therefore difficult to associate rewards to individual effort when outputs depended on the efforts of many others. Marketing of produce was strictly controlled: deliveries of specified crops to state agencies had to be made to fulfil quotas, paid at low prices.

[5] This is a minimal agenda. Considerable debate has re-emerged in the new century over just how pro-active government should be in encouraging investment, contributing to private investment and steering the direction of such investment (Estrup 2009). For a flavour of these arguments, see Lin and Chang (2009) on industrial strategy.

In 1978–1979 two reforms were enacted. One effectively allocated commune lands to households which could then produce at the family level. The other partly liberalised marketing, allowing farmers some freedom to choose crops and animals and to sell them on open markets for whatever prices they could negotiate.

This was hardly a comprehensive reform – subsequently these reforms have been deepened and complemented by others – but it did greatly relieve the significant deterrents to effort, investment and innovation.

The effect was dramatic (Bromley and Yang 2006, Rodrik 2003, Zhang 2006 in Cabral et al. 2006). Agricultural production by value, in constant terms, increased by 57% in the seven years from 1977 to 1984 [FAOSTAT data]. Not all of this came from farmers switching from staples to producing higher-value fruit, vegetables, dairy and meat: output of cereals rose by 46% over the same period.

The success of reforms is not limited to the rather exceptional case of China. In 1983 Ghana, whose agriculture had actually reduced in output during the late 1970s under the impact of heavy implicit taxation of farming, reformed its economy. Hyperinflation was tamed, the Cedi was devalued to a competitive level and, for agriculture in particular, the cocoa marketing board had its functions and staff trimmed to cut the margins between prices paid to farmers and those received by the board.

This restored agricultural growth. Indeed, for at least 25 years after the reforms, agriculture grew at an average annual rate of around 5% a year, one of the fastest rates seen anywhere in the world (Leturque and Wiggins 2011).

How good does the rural investment climate have to be? No one would claim that the reforms in China and Ghana created a good investment climate. On the contrary, in both countries many imperfections remained. Removing the worst disincentives to effort, investment and innovation seems to have made the difference. This mirrors the experience of efforts to improve governance that suggests that progress can be made when conditions are less than optimal, see Box 1.

Box 1 Enabling conditions: from best practice to good fit

When interest in governance in development rose to prominence in the late 1980s and early 1990s, the initial effort was to look for ideal conditions. This resulted in long lists of desirable conditions being compiled. For most LICs, this was a near impossible agenda. How, then, have some countries, especially in Asia, managed to grow strongly with imperfect governance?

Thinkers such as Chang (2003), Grindle (2004, 2007) and Khan (2005) challenged the demand for ideal conditions, pointing out that when East Asian countries began their notable growth accelerations from the 1950s onwards, governance in general and institutions in particular were far from ideal. Governance had been improved sequentially, with only a limited number of features being necessary to trigger growth and development. The improvements seen in additional aspects were then as much as a consequence of development as its cause.

That led to the search for governance that would be ‘good enough’ to stimulate the early stages of growth. Historical studies were instructive, showing how political legitimacy and order is a must, after which comes public provision of basic public services, then issues such as transparency in public finances, regulation and risk mitigation for the poor (Grindle 2004).

More recently, these insights have been qualified by those stressing the importance of adapting the conditions of governance to specific country conditions, leading to a study of governance that is a 'good fit' (Booth 2011).

Although few would argue against an enabling investment climate, political temptations can undermine it. Policy consistency, for example, can be derailed when leaders feel they have to react decisively to control markets; a prime example being bans on exporting staples when prices rise.

In southern Africa it has been argued that private investment in storing and trading grains has been stymied by frequent and abrupt government interventions to ban exports, control trading, demand private stores be released, or to announce public imports (Jayne et al. 2002). Above all there is the temptation to use scarce public funds to provide goods and services at heavily subsidised prices or for free, as frequently seen in agriculture for fertiliser and irrigation water. Not only is there the danger that fiscal deficits may lead to macro-economic imbalances[6], but it also means that public goods cannot be provided – which leads to the next point.

2.3 Provision of rural public goods

Government needs to supply rural public goods – that is, goods that would not be provided adequately by private firms, largely because they would find it difficult to recover their costs. These public goods include physical infrastructure – rural roads, electricity, perhaps large-scale irrigation and drainage where applicable; provision of services to enhance rural people's capabilities – education, health, clean water and sanitation; and technical improvements derived from agricultural research that are transmitted through extension.

Evidence, largely 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 the 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 example, for Rwanda's coffee farmers, transport costs from farm gate to the port of Mombasa were estimated to take 80% of the producer price, with the costs of transporting from the farm to Kigali at 40% of the farmer price. Modelling showed that halving transport costs would raise 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).

Provision of many public goods is relatively straightforward: the technology is known and the skills needed are modest. The main challenge is the discipline to commit the funds necessary, both for initial investments and for the operation and maintenance of facilities and services.

The next, item, however, is anything but straightforward.

6 The most likely is that the deficit is financed by sales of government bonds to the banks, so that interest rates rise and funds for private investment are crowded out.

2.4 Addressing rural market failures

A further role for the state lies with mitigating failures in rural markets. In rural areas of most LICs, smallholders either cannot obtain inputs, credit and insurance, or else can only do so at high cost. Moreover, the fraction of smallholders getting access to formal financial services is tiny – rarely more than one in twenty.

This is not necessarily a result of rurality or remoteness. It is remarkable how small market centres in remote areas usually stock soft drinks, beer, biscuits and soap. Rarely, however, do they have supplies of improved seed or fertiliser. So why do rural markets fail like this? Three rather different problems arise.

2.4.1 Information costs: high transactions costs

One concerns the costs of information – transactions costs – that occur in business deals. Such transactions costs include information on products and services and on the competence and character of the parties to the deal. When farm 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 seeking credit or insurance, and when farmers do not know the characteristics of seeds, fertiliser, veterinary drugs, etc., then these transactions costs rise. As costs rise, then the quantity traded falls and the price rises, leading to less use of inputs, credit and insurance than is optimal (de Janvry et al. 1991).

Such failings apply strongly to small-scale farmers who lack the financial liquidity and knowledge that formal firms have. Among smallholders the most disadvantaged of all are likely to be women farmers. Potentially these costs trap smallholders in poverty. They are too poor to afford to pay the inflated cost of inputs needed to increase production, unable to obtain credit to overcome their lack of liquidity, they cannot then use proven technology[7] to produce more, and so they remain poor (Sachs et al. 2004, CPRC 2008).

Investments in processing plants and storage may fall prey to the same problem. Would-be operators will only invest if they can be sure they can obtain supplies from farmers. Farmers, for their part, will only produce surpluses if they can be sure that these will be bought – with both parties needing reassurance that prices will be reasonable with neither side using market power to extract a rent. When neither party knows that much about the other, then opportunities go begging (Kydd 2002, Poulton et al. 2006).

When information is lacking, risks and uncertainty increase. So why not insure against possible hazards? Yet formal insurance is usually absent from rural areas in LICs since insurance itself fails owing to lack of information. Potential providers know too little of the risks in agriculture and of the character of the would-be insured, while the latter do not necessarily know if the provider is trustworthy either. Hence most rural risks go uninsured.

[7] Market failures are only one of the set of competing explanations for the apparent underuse of proven technology embodied in external inputs. Other explanations include cases where risk may be higher than most smallholders can bear, or where policy instability may deter investment (Udry 2010).

It is difficult to establish precisely and concretely the prevalence and severity of high transactions costs, even if the near absence of credit and insurance in rural areas of many LICs and the high costs of farm inputs strongly indicate their existence.

2.4.2 Monopoly power

A further market failure, it is frequently alleged, is that local traders, input dealers and informal lenders have monopoly power that allows them to extract rents. Barrett (2008), for example, reviewing the participation of small farmers in markets in eastern and southern Africa found several reports of imperfect competition, including rice trading in Madagascar. Other studies, however, have found traders making only modest profits; see, for example, Fafchamps et al. (2003).

2.4.3 Thresholds and externalities

Other market imperfections can deter investors from contemplating projects. They may face high one-off costs when constructing physical infrastructure – for example, irrigation works – with returns realised over decades, well beyond the horizon of commercial lending.

First movers investing in new activities face costs in learning about farming that is appropriate for the local conditions, and perhaps also about institutional arrangements if they contemplate contracting out-growers. These costs can be high initially, but soon come down with experience. Moreover, much of the know-how generated is public; rival investors can learn for free and compete having not incurred these early costs.

Some private investments may generate benefits for others living in the same area. For example, new ways of farming may be imitated, a rural access road to a project site will be used by others, or a power supply installed for a processing plant may be extended to local villages at low additional cost.

For these reasons, public support for pioneering and innovative private investments can be justified. This can then encourage private investment to be levered in (Palmer 2010).

2.4.4 Better rural markets: a major challenge

Setting an enabling investment climate and providing rural public goods are both reasonably well understood and largely straightforward given the political will. Addressing rural market failures, however, is challenging.

Major debates exist over whether to intervene in the markets directly, as the old marketing boards used to do, or whether to rely on private institutional innovations – of which there are several – aided and abetted by strategic public support.

Potential responses will be examined in Section 3.3.

2.5 Summary of key points

This section sets out a framework for considering when and how public action may be necessary to encourage private investment and innovation for agriculture and associated activities. It proposes that:

1. The state needs to set an enabling rural investment climate, with peace and security, macro-economic stability, predictable policy and basic economic institutions. The investment climate does not need to be perfect: the critical point is to avoid gross failings – such as the astonishingly high levels of effective taxation (‘negative protection’) seen in parts of Africa in the 1970s and early 1980s;
2. Rural public goods – roads and other physical infrastructure; education, health and clean water, and agricultural research and extension – usually repay their costs. The state needs to supply these; firms and households will not provide sufficient;

3. Some rural markets, such as those for inputs and financial services, fail chronically owing largely to the high costs of information to both buyers and sellers;
4. Other market failures that deter investors include high initial investment costs that pay off only in the long run and high costs of learning for first movers. Socially the investments make sense, but commercially they are either risky or too costly. In both these cases, the state may act to reduce the market failure. As will be seen, however, straightforward and simple remedies are elusive.

SECTION 3

Engaging the private sector

This section reviews specific policies and investments that seek to stimulate private investment and innovations in natural resource-based livelihoods, with special attention to some recent initiatives that DFID has funded. It is not just about public action, since there are private and collective responses to market failures. These are also included in Section 3.3.

A general principle for public action is to work as far up the hierarchy as possible. Blockages at the national level can severely hinder investment, while actions at this level economise on public capacity and may also have low financial costs, as for example in the management of the exchange rate[8]. The converse also applies; working with specific households and enterprises can be costly, with benefits largely limited to relatively small numbers. Hence this section begins with macro-level issues and works down to micro matters.

3.1 Macro: investment climate and economic institutions

Elements such as peace and security and macro-economic management lie beyond the remit of this Guide. Here we note efforts to assess and evaluate investment climates, trade facilitation and fostering basic economic institutions.

3.1.1 Assessing the investment climate and shedding light on shortcomings

For more than 30 years, there have been attempts to measure the quality of the investment climate and hence competitiveness across countries with at least eight different initiatives (Christy et al. 2009). Two of these stand out as being highly visible and much cited. They are:

- The World Bank's Ease of Doing Business indicators, which cover 185 countries, and have been assessed annually since 2004. The indicators come mainly from reports by formal enterprises located in major cities, so they tend to underplay issues affecting rural areas and informal activity. Their strength lies in business regulations, but less so on the macro-economy and other enabling conditions (Christy et al. 2009);
- The World Economic Forum's Global Competitiveness Index that has rated 145 countries annually since 2004. It focuses more closely on macro-economic conditions. Countries are grouped based on Porter's (2001) conceptions of economic development: initially, a low income country (LIC) puts underused resources to work and then, subsequently, makes the transition to using resources more efficiently before finally becoming an economy where technical innovations drive further growth.

[8] Evidence suggests that economic growth, especially in LICs, responds strongly to the real exchange rate so that overvaluation can put a severe brake on growth (Rodrik 2008)[8]. Some Asian countries have seemingly undervalued their currencies deliberately to stimulate growth. In Africa, in contrast, exchange rates have tended towards over-valuation – grotesquely so in the 1970s. Yet the exchange rate can be managed by a handful of central bank staff, at very low cost.

These indices have proved influential, to the point where some countries actively try to move their countries up the ranking by reforming low-scored areas, both to attract investors and as a matter of pride. The drawback with these indices is that they are economy-wide and pay little attention to specific features of the business climate for particular sectors or value chains.

Therefore, since 2012 the World Bank, in collaboration with other donors, has set out to remedy this for agriculture through Benchmarking the Business of Agriculture. This will assess conditions for agricultural growth, competitiveness and transformation from the standpoint of (commercially viable) family farms, with ratings in eight key areas – inputs, finance, transport, energy, communication, markets, land and water.

More than a review of regulations and the macro-economy, it will look at agricultural value chains and the deeper determinants of competitiveness. The concepts have long been understood in outline, but this represents a first attempt to measure them in ways that will allow comparison across countries. The pilot exercise to establish these for 10 countries should be ready by mid-2014, with the eventual aim of covering 80 countries. As with the Ease of Doing Business index, it is hoped that this will stimulate countries to make changes in those dimensions where they lag behind comparable countries.

3.1.2 Facilitating trade among neighbouring countries

Regulations that deter trade have attracted much interest given the potential gains from trade. For Africa, this applies strongly since so little moves across borders within the continent. This is in stark contrast to the European Union where the vast bulk of trade, including that in agricultural produce, takes place between member states.

In Africa, agricultural products stand out for their potential to be traded much more within the region. Almost all countries produce a considerable range of farm outputs, yet often there are glaring disparities in the costs and availability of items in neighbouring countries, while weather and harvests vary from country to country. Thus, there should be great scope for countries to exploit absolute and comparative advantages in agricultural trade, while reducing volatility of supply and price in markets. A World Bank review (2012a) identified five areas for attention:

- Seed and fertiliser trade, where different regulations and specifications particular to each country lead to delays in trading and hold-ups at borders. Shipments, moreover, have to be prepared for each individual market. Regional standards could avoid delays and costs;
- High transport costs, partly owing to inadequate roads, but also to lack of competition including transport cartels and roadblocks:
- Trade policies, including variable quotas, export bans and restrictive rules of origin that raise costs and introduce uncertainty to investors;
- Time taken and costs of crossing borders, especially for small-scale traders. Large companies can cope with demands for documentation, but smaller actors less so;
- Inefficient distribution systems that raise costs, owing to regulations that deter innovation and investment in such systems. Consequently, poor people living in slums can pay more for their food than middle class customers at the supermarket.

DFID supports trade facilitation programmes in Africa to alleviate some of these restrictions. TradeMark East Africa, funded by DFID, Belgium, Denmark, The Netherlands and Sweden began in 2011 to facilitate trade within the East African Community (see Box 2) while FoodTrade Eastern and Southern Africa (see Box 3) specifically aims to stimulate the regional trade in staples.

Box 2 TradeMark East Africa: 'Growing Prosperity Through Trade'

TradeMark East Africa was formed in 2011 to promote trade and investment across the six states that make up the East African Community (EAC). Based in Nairobi, it works with EAC institutions, national governments, the private sector and civil society organisations. It aims to increase trade by increased market access, an enhanced trade environment, and increased product competitiveness.

By 2016 it aims to:

- Increase total export value from the EAC by 10%;
- Increase inter-regional exports compared to total exports in the region by 25%;
- Reduce average times to cross borders – for example, cutting the time to import a container from Mombasa or Dar to Burundi or Rwanda by 15%, and cutting the time it takes trucks to cross borders by 30%.

Projects include:

- Implementing a Customs Union, the first stage towards consolidating East Africa into a trade bloc with uniform policies;
- Developing one-stop border posts, legislation and procedures to reduce transit costs at border crossings by combining both countries' border agencies at a common location;
- Implementing a single customs territory;
- Negotiating on the tripartite free trade agreement;
- Reforming business environment legislation on policies and procedures, particularly related to public-private partnerships, competition and tax harmonisation.

Sources: TMEA 2013, a and b; 2014

Trade facilitation programmes run the gamut of actions from national policy improvements to specific investments in storage, information and so on. FoodTrade East and Southern Africa is an example that was launched very recently in 2013 (see Box 3).

Box 3 FoodTrade East and Southern Africa – facilitating regional trade in staples

FoodTrade East and Southern Africa (ESA) is a five-year programme, launched in 2013, to enhance and promote trade in staple food crops in and across nine countries – Burundi, Kenya, Rwanda, Uganda, Tanzania, Malawi, Mozambique, Zambia and Zimbabwe.

Funded by DFID and implemented by Development Alternatives Incorporated (DAI), FoodTrade's goal is to increase regional staple food trade to benefit more local producers and supply-chain actors by increasing participation in national and cross-border value chains.

To achieve this, FoodTrade ESA funds five key actions:

- Policies and regulation: working with national governments and regional bodies to enact policies to foster enhanced regional trade in staples;
- Development of public and private infrastructure and transport. FoodTrade aims to attract public-private partnership (PPP) investments;
- Market information: introducing warehouse management to monitor stock levels and moisture content for maize storage in ESA; empowering farmers, SMEs, private sector and governments with real-time information;
- Food storage and collateral management systems: developing innovative storage to help farmers better store when prices are low so they can sell when seasonal prices rise;
- Market services: developing markets for inputs, extension, transport, finance and market intelligence among others.

FoodTrade uses two investment funds:

- The Challenge Fund aims to stimulate innovative business models to deliver commercial benefits; solutions to failures in regional staple food markets; jobs and income; and market access for the poor, including smallholder farmers. Private companies with projects that impact at least two countries and stimulate cross-border trade can apply. Grants – ranging from £150,000 to £1 million – can fund up to 49% of the investment for each project, with firms responsible for providing or sourcing the remainder. The first window of funding opened in June 2013, so the programme is still in its early stages.
- The Development Fund, not yet launched, intends to invest in micro- to medium-sized enterprises that lack the resources to access the Challenge Fund, but who have innovative ideas to connect small-scale farmers to regional markets. The Development Fund also will invest in improving dialogue between private sector stakeholders and policy makers on ways to improve the functioning of regional staples markets.

Sources: FoodTrade ESA, 2013

For international trade in agricultural produce, a particular bugbear in regulations lies with sanitary and phytosanitary standards (SPS) that are applied at borders. For example, beef

entering the EU has to come from herds in areas certified as free from foot and mouth disease by the Office International des Epizooties (World Organization for Animal Health). While most SPS standards may be justified, on occasion the standards have been set so high as to constitute a non-tariff barrier to trade (Prévost 2010).

3.1.3 Fostering institutions to facilitate economic exchange

Economic institutions enable, and cut the costs of, doing business by making the behaviour of other parties more predictable. For agriculture, some of the more important institutions comprise:

- Land rights. It goes without saying that farmers will not invest unless they feel that their rights to land are secure. The key question then is what are the forms and practice of tenure that confer such security? Much debate surrounds the extent to which long-standing collective forms of tenure in Africa fulfil this.

  Some reports see customary tenure as offering smallholders considerable security (Besley 1995 on Ghana; Brasselle et al. 2002 on Burkina Faso; Place and Otsuka 2002 on Uganda). Others see insecurity in these forms. Goldstein and Udry (2008) report under-use of fallowing in southern Ghana owing to fears of loss of rights to land not being actively farmed, while farmers in Uganda have invested more on plots they own compared to those for which they have only the right to occupy (Deininger and Ali 2008).

  As population pressure increases, especially in peri-urban areas, land disputes tend to mount, so that while customary tenure may have been adequate in the past, in densely-settled areas at least it seems that more needs to be done to confer security. The wave of land acquisitions seen in Africa since 2008 makes formal recognition of the rights of smallholders all the more pressing.

  Further debate surrounds how best to strengthen land rights and how to do so rapidly and economically. Past efforts to adjudicate land to individuals, involving surveying and mapping, registration and titling have often been costly and lengthy – in central Kenya, for example, it has taken decades to complete the process. Moreover, assigning rights to a named individual may see other members of the household and secondary users of the land losing their entitlements.

  Hence, schemes to register land collectively and individually at lower cost have recently been pioneered, using local meetings and consultations to register rights seen as legitimate in local eyes, as practised in Ethiopia (Deininger et al. 2007, Deininger and Byerlee 2011). Such exercises may well strengthen rights at relatively low cost, although their impacts have yet to be fully understood;

- Intellectual property rights for genetic material. Some argue that unless plant breeders have strong rights to varieties they have developed, then private investment in research and seed production will be limited, thereby slowing technical improvements. Others, however, see companies trying to monopolise natural material while marginalising the value of original landraces conserved and developed over generations by smallholders. They fear legislation to prevent farmers from replanting saved seed without paying royalties when replanting (Tripp et al. 2006);

- Recognition of warehouse receipts as commercial documents. Private storage would be encouraged and seasonal variations in prices mitigated if smallholders could lodge surplus harvests with warehouses for later sale. The receipt for stored grain

could then become a tradable document used as collateral for short-term bank credit, given financial regulations to recognise the document (Coulter and Onumah 2002);

- Legal recognition of smallholder farmer associations. All countries have regulations for establishing cooperatives, but they can be demanding in standards for accounts, audits and formal governance. For small agricultural associations they may be excessive. Hence there is a challenge to develop systems which allow legal recognition of collective entities (for the purposes of entering into contracts, banking, taxation and legal redress), but which do not require extensive and expensive documentation, detailed auditing and reporting, and which allow flexible operations suitable for small-scale farmer associations (Shiferaw and Muricho 2011);

- Setting standards for weights, measures and quality that reassure those trading. For goods whose qualities are hard to judge by inspection, these need backing up by credible certification. An example would be seed certified as true to the variety stated and having a minimum level of germination.

It is easy to specify an ideal framework of such institutions, thereby imposing high demands for administrative skills on LICs. Yet institutions can develop, over time, from simple to more sophisticated and formal mechanisms. In the early stages of development, the emphasis should be on providing basic assurances by means commensurate with domestic administrative capacity.

3.2 Meso: rural public goods

A major component of rural public goods is the provision of physical infrastructure, above all roads and electricity, in rural areas. Technical details on physical infrastructure are beyond this Guide – see Pinstrup-Andersen and Shimokawa (2006) – for more discussion.

Given the low investment in physical infrastructure in much of rural Africa over the last few decades, there has been interest in using public-private partnerships (PPP). In these, a private firm funds some of the initial investment and may operate the facilities created, and, in return, is paid according to the subsequent public use of the facility, following models adopted in high-income countries since the 1990s.

PPPs promise to raise more capital and bring in know-how for efficiency in construction and operation. Practice in high-income countries, however, does not always bear this out. For example, it is not clear that PPPs have cut costs in the UK. Initial public investment may be lower, but future payments may be high. Moreover, it requires considerable skill for governments to establish partnerships to deliver value for money while attracting good companies to build and operate infrastructure. For LICs, PPPs may be most applicable when revenues can readily be earned from operating the facilities, as might apply with water schemes. For some rural public goods, such as rural access roads, it is hard to charge users (Poulton and Macartney 2012).

The Southern Agricultural Growth Corridor of Tanzania (SAGCOT) is a joint initiative of the government of Tanzania, development partners, NGOs and private firms – both national and international. The initiative aims to develop the potential of 350,000 hectares of farmland to produce rice and other grains, pulses, sugar and livestock. Launched in 2010, it should help 450,000 farming households raise their incomes. By co-ordinating efforts and providing some low-cost capital for start-ups, SAGCOT plans to stimulate US$3 billion of largely private investment. An early indicator of what may be possible is that Yara fertilisers announced, in early 2012, a US$420 million fertiliser terminal at the port of Dar es Salaam

(more on SAGCOT appears in Box A, PEAKS Topic Guide on *Smallholder engagement with the private sector*).

The other public goods that matter in rural areas include education, health services and clean water, which allow people to work and otherwise live their lives, and the knowledge services of agricultural research and extension. More detail on the provision of these is beyond the scope of this Guide (see World Bank 2003 on services for the poor; Pardey et al. 2006 and World Bank 2012b on agricultural research and extension).

Private-public partnerships might also be used for agricultural research and extension, but attempts to do this have so far had limited and mixed results (Poulton and Macartney 2012). The international agricultural research centres already partner with large agricultural research companies who have specialised expertise in biotechnology, but the application of such PPPs has not notably led to breakthroughs. Some of the more pressing agricultural research issues, such as soil fertility management and carbon capture, require integrated approaches that are not the focus of commercial research, in part because such research generates public knowledge that has little commercial value.

3.3 Meso and micro: overcoming market failures

Two broad sets of responses to market failures can be seen – public action to replace the market and initiatives (mainly private and collective), to create innovative institutional arrangements. Since this Guide is about encouraging private initiatives, the former will be dealt with briefly.

3.4 Replacing the market

Before the economic reforms that took place in most LICs in the 1980s and 1990s that promoted markets, a common response to failings in rural markets was to have the state supply inputs and services. Typically they did this through the marketing boards described in Section 1.

Most proved too costly to sustain, but not all. Occasionally, these agencies have functioned well, with the Kenya Tea Development Authority, which organises smallholder production of tea and its subsequent processing, being an outstanding example since its formation in the 1950s (see Box 21, Wiggins and Keats 2013a). More recently the reformed cocoa authority, Cocobod, in Ghana has helped revive production and raise productivity. More details appear in Appendix C.

In addition to marketing boards, in order to provide credit to farmers many developing countries operated state-owned agricultural development banks in the 1960s and 1970s. Often they ran up heavy losses owing to the high costs of administration, low interest rates and, above all, farmers defaulting on repayments. The reforms of the 1980s and 1990s saw many closed down.

Despite widespread recognition of the shortcomings of the public provision of inputs and other services, the option remains politically attractive. Not only does this demonstrate action to voters, it also offers opportunities for patronage of political clients. Public action also caters to those who suspect that intermediaries in supply chains exercise market power to exploit both smallholders and consumers. Suspicion of traders has long-standing and deep roots.

Direct public provision has re-emerged with the wave of fertiliser subsidies seen in Africa since the mid-2000s. Frustration over market failures gained focus when agricultural experts

signalled just how little fertiliser was being applied in Africa in the 1990s and 2000s, thereby either hindering the uptake of improved fertiliser-responsive varieties or else limiting the potential yield from these varieties. At the 2006 Fertilizer Summit in Abuja, African leaders thus agreed to raise fertiliser use from an average of 8 kg/ha to 50 kg/ha by 2015 (African Union 2006).

Consequently, several governments decided to subsidise the cost of fertiliser. Although a subsidy need not mean replacing private provision, in some cases the subsidised inputs are provided directly by state agencies. This applies for the most notable of these schemes – Malawi's Farm Input Supply Scheme, which began in 2005 (see Appendix C2). Large in scale and ambition, the Scheme was launched in the face of criticism from some donors, but subsequently has been hailed by some for its apparent success in raising maize yields and output.

Subsidies on fertilisers and other inputs can produce visible results in increased crop production. Yet there are questions about whether these benefits justify their high cost and, perhaps more importantly, about when and how the subsidies can be reduced or ended once farmers have learned the use of fertiliser and operate at higher productivity.

Optimists believe that improving the targeting and implementation of subsidies, trying to make the subsidies 'smart' – focused on those who genuinely cannot otherwise afford the inputs, limiting programmes in time, working with commercial distributors – can make them more effective and reduce costs. Pessimists see them as millstones with heavy opportunity costs, embedded in political expectations and as next-to-impossible to shift. India, for example, seemingly cannot contain the rising costs of its subsidies to fertiliser, public irrigation water and rural electricity introduced in the 1980s to support the green revolution. Meanwhile other public investment in rural India has languished and the growth rate of agriculture has slowed (Wiggins and Brooks 2012).

When a poverty trap may exist, however, such subsidies may be justified (Chirwa and Dorward 2013). In an LIC with a dominant staple crop, produced by poor smallholders in a rural economy marked by extensive and deep market failures, poverty could prevent farmers from buying inputs that could raise their productivity and alleviate their poverty – with long-term benefits in food security and nutrition.

Moreover, if the LIC were isolated from external markets by high transport costs, then increased staple crop production would depress domestic prices to the nutritional benefit of all the poor in the country. Hence subsidies might allow farmers to escape the trap, with widespread benefits to the country as a whole. Malawi, of course, fulfils these conditions. Other landlocked LICs might also qualify, including most countries in the Sahel from Mali to South Sudan, Burundi, Rwanda, Zambia and Uganda. The same may be true within Asia, in Afghanistan and Laos.

3.5 Innovative institutional arrangements

The alternative to replacing the market is fostering private and collective responses to market failures. Such efforts seem to have been increasing in the new century, spurred no doubt by the return of interest in agriculture, higher commodity prices and recognition of failures in input and finance markets.

Two ways of addressing market failures can be identified, as follows:

- Address key problems affecting a particular supply or value chain. Problems, of course, may be broader than just the market failures. The lead here is usually taken

by either private companies – processors, wholesalers, supermarkets, exporters – or by NGOs and foundations, including those specialised in value chain development such as SNV Netherlands or Technoserve. Donors commonly support NGOs in these cases and, as will be seen, increasingly engage with private firms when acting as supply-chain champions.

Sometimes the focus is on a particular aspect of transactions costs, as applies, for example, with certification programmes;

- Develop a market for a particular service, such as finance or insurance, that involves reducing transactions costs, but which may have several other elements. Here the lead is usually government, often supported by donors, with participation by industry associations.

Table 2 compiles in more detail the approaches seen. This sorts actions into categories; however, in any particular initiative, more than one of these actions may be used since most are complementary to one another.

Actions to overcome market failures	How it works	Prime movers and examples
Initiative comes primarily from public and collective agencies		
Develop rural financial services: • Agency banking	Local agents handle simple transactions at low administrative cost, drawing on local knowledge to reduce transaction costs with clients	Banks, backed up by public regulations ***Financial Deepening Trust, Kenya***
• Public loan guarantees	Banks encouraged by public guarantees against bad debt to extend loans to new clients in rural areas, SMEs and farming	Donor and government ***Centenary Bank, Uganda***
Develop rural insurance: • Micro insurance	Provision of insurance tailored to the needs of customers on low incomes, covering, for example, health costs, life insurance, livestock and debts incurred for farm inputs	Donor and government ***Financial Deepening Trust, Kenya***
• Index insurance, often weather-based	Indexing pay-outs to measured weather reduces the moral hazard and hence transactions costs; it also lowers administrative costs – but adds risk that individual losses do not tally with index (basis risk)	Donor, government, foundation ***Syngenta's Kilimo Salama, Kenya****
Develop input markets: • Train input dealers on fertiliser properties and use	Local input dealers trained in the properties of seed, fertiliser and agro-chemicals, as well as in business management Inventory credit or guarantees provided to ensure local dealers get supplies from wholesalers	NGO, donor, government ***Katalyst training of input dealers in Rangpur, Bangladesh****
Direct services to farmers	NGO provides inputs, technical assistance and marketing services on credit to smallholders; the credit is at low cost with costs recovered after harvest	NGO, foundation ***One Acre Fund, Kenya and Rwanda***
Lever in large-scale investment by formal firms: • Patient capital	Long-term, concessional funds for physical works and to contribute to costs of learning – to overcome initial uncertainties – will attract private finance to invest In return investors provide services and expertise to smallholders	Quasi-autonomous non-governmental organisation (Quango) administers public funds ***AgDevCo: e.g. Chiansi irrigation scheme, Zambia***
• Public grants from challenge funds	Grants to encourage private investors to undertake innovative investments that would	Quango administers public challenge fund

Actions to overcome market failures	How it works	Prime movers and examples
match private investments	otherwise be too costly or risky in the initial stages	***African Enterprise Challenge Fund (AECF)*** ***Food Retail Industry Challenge Fund (FRICH)***
• Introduce investors to farmers and local rural businesses	Bring investors, including foreign companies, into the field to meet potential smallholder suppliers or local processing companies	NGO, Foundation ***Sustainable Food Laboratory's learning journeys****
Initiative comes primarily from private firms and collectives		
Contracting of small-scale producers by processors, exporters and retailers	Companies in the supply-chain contract with smallholders for supply of produce They may further link this contract to provision of inputs and technical assistance on credit, costs then deducted from payment for delivered produce	Private firms Sometimes brokered by NGOs specialised in value chain development ***Eagle Lager, Uganda, sorghum; Blue Skies, Ghana, pineapples; Illovo, Malawi, sugar cane***
Grouping farmers in associations or cooperatives	Farmers associate to negotiate with formal firms in the supply chain to sell produce, and to obtain inputs, finance and technical assistance Grouping reduces unit administrative costs. It can reduce transactions costs as well, as when groups of farmers assume joint liability for (1) credits from banks, or (2) for compliance with practices necessary for certification	Farmer initiative Often encouraged by private companies, NGO and government agencies ***Seen in many contracting schemes. One Acre Fund reaches farmers through groups***
Use of local agents	Private firm appoints a local agent to deal with a set of farmers. Agents usually trained in technical knowledge and business skills Economises on administrative costs, while the local knowledge of the agent about the competence and characters of farmers reduces transactions costs For input supply, the model may be as formal as a franchise	Some banks ***Micro-banking, Bank Rakyat, Indonesia**** Private firms contracting supplies from smallholders ***Dunavant cotton, Zambia*** Fertiliser and agro-chemical companies franchising local farm input dealers ***Bayer Green World, Kenya****
Certification of produce from smallholders: • Global Good Agricultural Practice (GAP)	Growers delivering to supermarkets in Europe follow good practice in food safety and working conditions. Compliance is documented and certified Reduces transactions costs for supermarkets, allowing them to procure with confidence from growers, including smallholders, located in distant countries	Growers and private firms, especially exporters contracting from smallholders ***VegPro, Kenya*** NGO, donor
• Fairtrade, Organic	Certification, mainly for markets in OECD countries, that growers have produced to organic standards, or qualify as fair traders, being small-scale producers, following good practice in	Private firms NGO, foundations ***Pineapple growers for Blue Skies, Ghana***

Actions to overcome market failures	How it works	Prime movers and examples
	working conditions, environmental management, etc.	

Note: * Details of these means and examples cited appear in the PEAKS Topic Guide, *Smallholder engagement with the private sector*. In cases where they do not (marked by an asterisk), details appear in Appendix A.

Table 2 Overcoming market failures through private and collective action

3.5.1 What does the public sector need to do?

Some initiatives stem purely from private initiative, with no necessary public involvement. Originators are directly engaged. They stand to make a profit that compensates for additional costs and risks incurred. They may be farmers who have learned of a market opportunity, although more often they are likely to be a trader, processor, exporter or retailer who knows the market well and sees the chance to source produce from smallholders.

Contracting schemes (see Box 4) are good examples of initiatives from processors and exporters.

Box 4 Contracting: vertical integration for inputs and markets

To assure supplies, processors may contract smallholders to grow supplies for them, sometimes to complement those from a nucleus estate. This alone may provide incentives for small farmers to produce more, but some schemes go further – they provide inputs in advance, with cost deducted from payment for produce. Most schemes also include technical assistance to improve production, deter side-selling and keep supplies on schedule. Examples include:

- In Uganda, the Eagle Lager partnership began in 2003 when Nile Breweries, part of the SABMiller group, developed a beer from sorghum. A trading company, Afro-Kai (AKL) was hired to procure from farmers. The 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 the collection and storage of grain. By the early 2010s more than 5000 farmers were growing for the scheme;
- Illovo Sugar, Malawi, operates two mills with nucleus estates. In addition at the two locations, around 1000 out-growers produce additional sugar from 3000 hectares. Contracts are highly formalised. One group of out-growers has been certified for Fairtrade;
- In Ghana since 1998, Blue Skies Agro-Processing Company has 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 the domestic pineapples, around 30% come from large-scale farmers and the remaining 70% from 140–150 smallholders. Some suppliers are certified organic; others have reached Global GAP standards;

  Blue Skies offers its out-growers 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 Blue Skies Organic Collective (BSOC) get a premium over this price.

Contracting can work well, so long as there is scope for both parties to profit and both parties are committed to the arrangement – typically because processors cannot otherwise get supplies, and growers cannot otherwise sell produce. It helps as well if the market for the produce is reasonably stable, so that contracted prices paid at harvest do not diverge from spot prices.

Given how promising contracting is, it is perhaps surprising that only a minority of smallholders hold contracts. Presumably the conditions for success preclude the supply chains for many crops. Often produce can be grown, processed and marketed on a 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.

Sources: Contracting in general : Barrett et al. 2012; Oya 2012; Prowse 2012
Uganda: Bayla 2007; Jaffee et al. 2011; van Wijk and Kwakkenbos 2012.
Malawi: 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.
Ghana: 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 Organization 2012.

In such cases, there is no direct role for the state other than ensuring an enabling investment climate, providing public goods, and establishing basic economic institutions. Additional actions that may help facilitate private initiative are, as follows:

- Government may help set up contracts where these are new to smallholders, helping farmers negotiate, hosting negotiations between processor and growers, and providing model contract templates. Perhaps in some cases the state may also guarantee the arrangement for a first run, offering to buy up produce should the processor default (Vermeulen and Cotula 2010);
- Facilitate collective action through appropriate regulations for small-scale, semi-formal farmer associations;
- Licensing the buying of particular crops in specific districts usually to a single company, to deter side-selling of produce by contracted out-growers. In Mozambique, for example, cotton companies have been allocated geographical monopolies. The danger is that the processor can then pay a lower price than they would under competition. Better may be to licence a limited number of operators, who may share information to prevent side-selling[9].

In other cases, however, the initiative has been, at least in part, the result of some external prompting. Two motivations stand out:

- Reducing poverty by better linking poor people to markets. Some NGOs have been prominent in this. A favoured approach here is Making Markets Work for the Poor (M4P). This looks at how markets work from the perspective of the poor and seeks ways to remedy some of the (many) deficiencies and failures that often apply. The value chain may be taken as a way to frame the questions and analysis of possibilities[10].

  External action is justified for two reasons. First, because the beneficiaries variously lack capital, know-how and market knowledge, and they cannot tolerate the risks of innovation. Second, parties in the supply chain find it hard to co-ordinate their actions. Developing private input supply chains is an example of where public action may make a difference (see Box 5).

9 When different structures for cotton buying were compared across Eastern Africa, the best deals for farmers were found under neither monopoly nor free competition with many buyers, but rather in duopolies (Poulton et al. 2004).

10 Making Markets Work for the Poor (M4P) looks at how the poor can participate better in markets and reduce their poverty by doing so, thereby potentially embracing a wide range of actions to improve the functioning of markets. Value chain analyses (typically more narrowly concerned with improving chain efficiency), may form part of an M4P approach, although this looks more broadly at the wider market system to identify the systemic blockages. See: Ferrand et al., 2004; SDC and DFID 2008; and a LinkedIn 2011 discussion at: https://www.linkedin.com/groups/M4P-versus-Value-Chains-Whats-3728319.S.78403259

Box 5 Stimulating farm input supply through private dealers

Setting up local dealers in seed, fertiliser, agro-chemicals and veterinary supplies for smallholders is usually dogged by uncertainties – about appropriate products, likely demand and, for wholesalers further up the chain, about the credit-worthiness of dealers.

Public responses have been to train local dealers (1) on the products and their use – to the point where they can offer reliable advice to farmer customers and (2) on running a business. Guarantees have been offered to wholesalers to encourage them to advance inputs to trained dealers.

In Africa, CARE pioneered the model in the 1990s in Kenya and Zimbabwe with subsequent programmes supported by Rockefeller and AGRA.

Examples include Katalyst in Bangladesh (see Appendix A4) where farmers report that trained dealers have allowed them both to economise on inputs and to use more effective ones. In Zimbabwe, SNV have operated a Rural Agro-dealer Restocking Programme since 2009. This builds on experience from a previous effort before the economic recession: CARE's AGENT programme. More than 450 dealers have been trained, and they have more than 110,000 smallholder customers.

Private input supply can work well. In Kenya, liberalisation of fertiliser supply in the early 1990s led to the costs of distribution from port to local dealer being cut by half, with commensurate increases in the use of fertiliser by smallholders.

Initiatives are vulnerable to economic downturns (as in Zimbabwe), or to the government setting up direct distribution that bypasses private dealers (as in Malawi since the mid-2000s).

Sources: Poulton and Macartney 2012
Bangladesh, see Appendix A3
Zimbabwe: Sijbenga and Overmars 2010, Dhewa 2011, IFRTD2012

Once the initiative is up and running, it is expected that producers can carry on with less or no support;

- Stimulating business, jobs and economic growth. Typically here a semi-autonomous public agency (Quango) seeks to create new enterprises or supply chains that include smallholders. Initiatives may be at the level of the supply or value chain, but often the focus is on a specific enterprise. Examples here include AgDevCo's approach of deploying patient capital to lever in private finance, and challenge fund grants to firms with innovative proposals.

  Public support aims to offset the initially high costs of greenfield investment and learning costs for investments that will create jobs and other benefits for poor producers. To ensure this, a condition of the grants or soft loans may be that the firm contracts smallholders or supplies services to them.

There are limits to developing private supply, with agricultural extension a good example. In 1978 in Chile, public extension was replaced by private provision. Smallholders were given vouchers to allow them to choose extension advice from private providers. This lasted only a few years until 1983 before being replaced by public contracts to provide services to small farmers. Uganda also privatised advice to smallholders from 2001 onwards. This worked to some extent, but providers focused on the quick wins of better seed and fertiliser, and

directed their efforts first and foremost to those farmers in the villages seen as having most potential for commercial farming (Poulton and Macartney 2012). Information failures are particularly strong with advice, since it is so difficult for farmers to appreciate what they may gain from technical assistance when contracting it in.

Governments in LICs may partner in some of these initiatives, especially those promoted by the Quangos, but, interestingly, are rarely the prime mover. Why not? Sheer cost may be one consideration. Another may be the residual suspicion of open public engagement with private business. This is especially true in countries where history and ideology have led leaders and voters to see business as exploitative, and to see the government's role as one of controlling and regulating, rather than encouraging business.

Another reason that governments aren't prime movers in such initiatives may be expertise and experience: most public sector workers do not have the skills to operate as challenge fund managers; they may lack the aptitude as well. Lastly, challenge funds could so easily become a source of patronage that governments may prefer to deal with them at arm's length rather than operate them directly. Whatever the reason, governments so far have been fairly passive partners in these initiatives.

3.5.2 Assessing institutional innovation: applicability and potential benefit

It is no easy job to assess the success of the efforts seen so far, for several reasons:

- Survivor bias is strong: the experiences observed are almost all those that have succeeded. Failures are much less often documented. The literature on contract farming in Africa, for example, has many cases of functioning, often rather successful schemes, but the failures are hardly mentioned (Barrett et al. 2012);
- Attribution is another problem: where an arrangement functions well, how much is down to the institutional innovation featured, or how much does this respond to other factors?
- Similarly, spill-over effects are hard to measure. Some initiatives specifically aim to stimulate first movers: while their impacts may be assessed, what of those who follow in their footsteps?
- Last, but not least, most of the actions undertaken by private foundations and Quangos (funded by DFID) have begun within the last five or so years: given time to start up, their impacts are only beginning to be observed. Most initiatives, moreover, have understandably used their resources for action, leaving scant funds for evaluation.

So a precise answer about what works cannot be given. Even if there were such an answer it would have to hedged with many qualifications. That said, the various initiatives may be differentiated by the following criteria:

- How widely applicable is the arrangement? Does it reach the poor, either directly or indirectly?
- How great are the potential benefits?

Table 3 sorts the proposals by judging where they may lie with respect to the midpoint of a continuum of these criteria.

	Wide application	Narrow application
Higher potential benefit	Direct services to farmers Grouping farmers Train input dealers Agency banking	Contracting Local agents Patient capital Matching grants Introduce investors to farmers Loan guarantees
Lower potential benefit	Micro insurance Index insurance	Global GAP Fairtrade, Organic

Table 3 Innovative institutional arrangements by applicability and potential benefit

By width of application, some proposals are only relevant to those smallholders who can be linked to formal supply chains, probably delivering higher value produce to processors, supermarkets and exporters. In most LICs for the near future this will probably be a minority of smallholders. For a proposal to have wide application, it needs to reach those smallholders whose links are mainly informal.

Those proposals judged to have lower potential benefit include insurance that may only benefit households from time to time. Of course, for some vulnerable households insurance may be critical when disaster strikes. Certification often confers only limited gains to price, or else is quite costly to achieve for small farmers: yet certification may go hand in hand with contracting where the benefits can be considerable.

Clearly, judgments about proposals will vary greatly by context, but the four quadrants do produce stylised insights.

In the northwest sector of Table 3 lie proposals that potentially are widely applicable and could have high benefits to producers. The drawback is that they require initial investment, training and learning to arrive at schemes that suit local circumstances.

The northeast sector includes some commercial schemes, such as contracting and local agents, for which there are several proven examples with the potential to confer high benefits to the farmers engaged. But this may often be only a minority of farmers. Also in this group are those public supports to lever in private funds and know-how.

In the southwest corner are insurance schemes, which are potentially widely applicable. However, working models are either few or only insure quite specific risks.

Lastly, in the southeast quadrant are certification schemes which only apply to a minority of farmers. Expectations of certification need to be tempered by their often narrow applicability: see Jaffee et al. 2011 for a critique of exaggerated expectations of certification shown by some donors.

3.5.2 Taking innovative arrangements to scale

Can functioning arrangements be replicated or scaled up? Possibilities are closely connected to the approach adopted.

Purely private initiatives – mainly those in the northeast corner of Table 3 – may be scaled up either as firms expand the business model they have created, or replicate it at another site. For example, the substitution of imported malt for brewing beer by locally-grown alternatives can be seen at present in several countries in Africa. This is partly because the breweries usually belong to international conglomerates that transfer their experiences across territories, and partly because the word has spread that costs can be saved while demonstrating corporate social responsibility. Where these schemes work, it is reasonable to expect the search for profit and building businesses will see good ideas replicated.

Similarly the business-oriented Quangos may expect that their successes will be scaled up by their clients and imitated by second-movers. One fund manager interviewed was concerned that a client company was scaling up activity too quickly and on too grand a scale. Even though the company was risking its own capital, it might have been taking on too much risk and thereby endangering its operations.

What of scale for initiatives that depend to some extent on public support, at least to get them started? Two points apply. One is that most of these schemes need adaptation and trials to fit them to local circumstances. For example, the principles of agency banking are reasonably clear. However, the precise nature of the local agencies, the training necessary for agents, their incentives, the financial products they offer, etc., all need tailoring to context, with the expectation that some initial ideas may need changing with experience.

The other point is that most of these schemes need some initial extraordinary support to get them started. That may come from a public fund, or it may come from the determination of a private business leader. Moreover, where poverty alleviation is the driving motive, the question of how much support or subsidy arises. One Acre Fund (OAF) – see Box 6 – illustrates the quandary. With finance from a private foundation, OAF delivers inputs for staple crops to very small-scale farmers in Kenya and Rwanda, with costs recouped at harvest time. Starting in 2006, the Fund had, by end of 2013, reached 130,000 farmers mainly in these two countries, with expansion programmes recently started in Burundi and Tanzania. Lean administration contains costs, but programme overheads mean the model is at most 90% self-funded, leaving 10% to come from charitable donations. OAF has certainly achieved a scale of action well beyond that of many trials and pilots. Yet if it is to go further, it needs more private or public money to cover the 10% funding gap.

Box 6 One Acre Fund: inputs for very small-scale farms

One Acre Fund (OAF) addresses a key development concern: how can small farmers, without credit and with little ready cash, obtain better seed and fertiliser to increase production? OAF, a non-governmental organisation, began to tackle this in Western Kenya in 2006, in heavily settled areas of very small farms, where people struggle to grow staples for household needs given the low yields from unimproved seed with little fertiliser.

The Fund provides farmers who have one hectare or less of land, many of them women, with a simple package of inputs for maize and beans – hybrid seed and nitrogen fertiliser – on credit, plus technical advice. There is also a guarantee to buy-back the crop surpluses of farmers who cannot otherwise find a buyer. Inputs are advanced in kind, then costs are deducted when crops are sold or delivered to the Fund. Insurance is built in so that input credit can be repaid if the harvest fails.

Field officers, recruited from among the farmers, work with groups of 200–250 farmers, formed around existing women's groups. The groups assume liability for the inputs loaned. Field officers are then supervised, supported and provided with inputs by a management hierarchy that leads upwards to a district manager. The organisation appears economical, with relatively few managers compared to the farmers served. Consequently, the Fund may be covering 90% of its costs.

OAF has subsequently expanded the system to Rwanda and most recently to Burundi.

Maize yields have tripled from 1.2 tonnes/ha to 3.7 tonnes/ha in some reports. Coverage is impressive, by 2013, 130,000 farmers were reached in the three countries.

Sources: OAF reports, personal communications with staff

How does OAF's model compare to the public fertiliser subsidies in several African countries? It may be a cheaper way to allow poor farmers who face severe liquidity problems to obtain inputs. Rough calculations suggest that it costs OAF US$50 per hectare per year to operate, which is almost certainly less than the cost of the Malawi Farm Input Supply Scheme. Moreover, it runs less risk of the diversion of inputs and the undeserved inclusions (of better-off farmers) that dog the subsidised schemes.

Scaling up of publicly supported initiatives would be more likely if we had more reliable reviews of the experiences seen to date, which would reveal clearly the principles that make it work and which may apply elsewhere, from the contextual detail that only applies to the specific case. Ideally we need documented and convincing accounts of those initiatives that operate beyond pilot scale, as working models. Apart from their technical merits, such accounts might then provide inspiration for policy makers in other places addressing similar issues.

A final word of caution; not all innovative schemes will work. Any agency promoting such schemes has to accept that some will fail. Venture capitalists would expect to see failures in the portfolio, but would equally expect a few notable successes to outweigh these losses. For example, DFID's various investments in financial market development in Kenya may have been justified by just one outstanding success: the M-Pesa money transfers that received DFID support in the development phase.

3.4 Summary of main points

This section sets out ways to stimulate formal firms' engagement with agriculture, responding to the principles set out in Section 2.

Interest is mounting in constructing a set of indicators to benchmark the business environment for agriculture.

Several trade facilitation programmes exist to stimulate trade among neighbouring countries, as there has typically been very little of this – despite the considerable potential for such interchange in agricultural produce.

The provision of public goods is generally not a technical challenge. Interest here has focused on whether it is possible to augment public funds and know-how with private sector capital and expertise in private-public partnerships. Given how demanding these are to establish and implement, there may not be much potential here.

Remedying market failures, which leave most smallholders with poor access to inputs and virtually no access at all to finance and insurance, is a major challenge. Market failures may, of course, be bypassed by direct state provision of inputs and finance, despite the high cost of such intervention in the past. The recent wave of fertiliser subsidy programmes in Africa that involve the public distribution of inputs reflects impatience with free markets.

Institutional innovations may also remedy market failures, and have the advantages of costing less and being more likely to stimulate private investment. These often rely on some early support from public agencies (NGOs, donors, foundations and government), such as:

- Development of rural financial and insurance markets through agency banking, loan guarantees and index insurance;
- Training of farm input dealers;
- Levering in private investment through matching grants, patient capital and simply introducing smallholders to investors.

In other cases, where business returns justify the extra effort, innovative arrangements have been worked out primarily by firms and farmers, including:

- Contracting smallholders, often with interlinked deals that offer credit and technical assistance up front;
- Grouping farmers in associations or using local agents to reduce transactions costs;
- Certification of smallholder production to standards for supermarkets, for organic and fairly traded produce.

Evidence is lacking on the performance of these innovative arrangements, and the conditions under which they work. That said, some are more widely applicable than others, and there is a marked division between schemes. For example, schemes such as contracting do not generally have wide application, but there are proven models for these, with potentially high benefits for participating smallholders. By contrast, there are other schemes that might be more widely applied with equally high benefit, such as providing direct services to farmers through quasi-commercial schemes (e.g. One Acre Fund), but models for these are less well known, and they may require greater public support, at least initially.

Commercial schemes will be taken to scale as and when business opportunities permit. Schemes that require public support face challenges. One is to distinguish between the general principles that allow schemes to work and those features that are contextual.

Another challenge is that most schemes need tailoring to circumstances, with successful schemes being developed through trial and error, where learning and a willingness to change matter. Finally, for some initiatives with high potential to reduce poverty, some public subsidy may be both necessary and justified by their impact on poverty. Determining how much subsidy is needed, however, may not be easy.

SECTION 4

Development impact: accentuating positives and avoiding harm

Overall, we can be reasonably confident that agricultural development will reduce poverty and hunger, as the evidence outlined in Appendix B suggests. The evidence, however, comes largely from comparing agricultural growth and poverty rates at the national level.

National aggregates hide variations by districts, farming systems and different farm enterprises, hence they beg questions about what forms of agricultural development, for which enterprises, and in what regions may have the largest development benefits. Moreover, behind the overall evidence of net improvement lies the danger that some people and groups may be harmed by particular forms of development.

So how can positive impacts be accentuated while pitfalls are avoided?

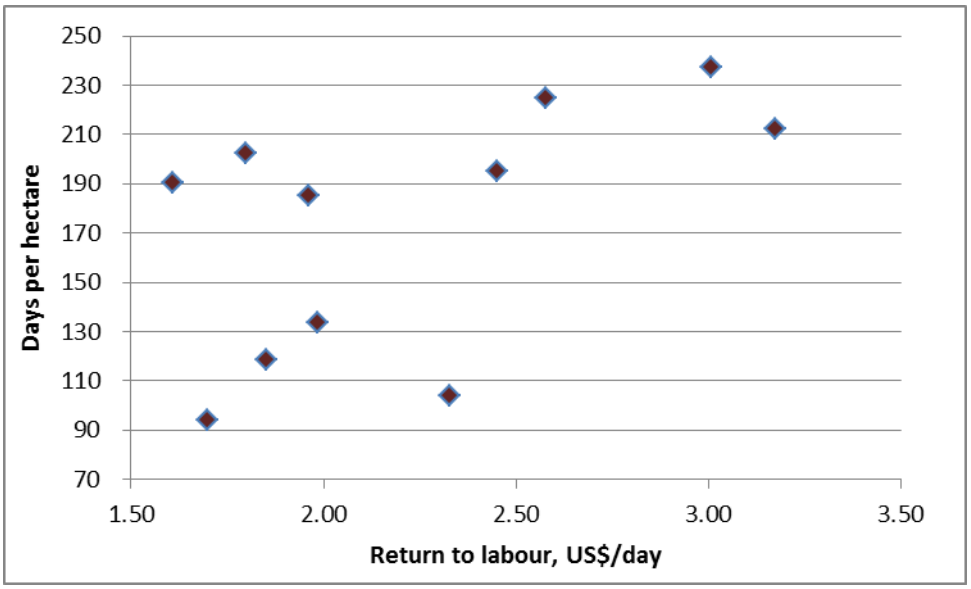
4.1 Accentuating positive impacts: generating more productive jobs

4.1.1 Jobs on farms

A key mechanism by which agricultural development helps to reduce poverty, especially in the early stages of development, arises through its labour intensity. Few activities generate more jobs per unit of capital invested than agriculture. That, of course, is no advantage if the jobs created have low productivity with meagre returns to the time spent on them. But intensification with higher productivity of both land and labour is often possible in LICs: ways to do so are often well known[11]. Evidence of higher labour productivity with more intensive cultivation can be seen for rice and oilseeds in Myanmar, see Figure 1.

[11] That implies, of course, that increases in yields have to be greater than the increases in the use of labour. As Lipton (2001) has pointed out, this was the great boon of the green revolution in Asia.

Figure 1 Days worked and returns to labour, rice and oilseeds, Myanmar



Source: Calculated from data reported in Raphy Favre and U Kyaw Myint (2009). An analysis of the Myanmar edible oil crop sub-sector, with data adjusted to 2012 price levels.

Where care in production and harvesting makes a significant difference to quality – as often applies with cotton, fruit, flowers and vegetables – intensive hand labour may well lead to better returns than a mechanised alternative. Intensive horticulture is a case in point, requiring far more labour per hectare than staple crops. In Kenya, smallholders growing French beans for export required no less than 1300 days per hectare per year, while chilli pepper, okra, tomatoes, onions and brinjal needed 540–690 days, compared to the 175 days to grow a hectare of maize and beans (Scheltema 2002).

Scale matters as well. Smallholdings tend to employ more labour for any given activity than larger holdings (Larson et al. 2012). Partly this occurs because a lack of access to financial capital and additional land means that the main way to raise output will be through greater use of labour. However, mainly it applies because the full cost of labour is lower on family holdings than on large-scale farms.

Smallholdings use household labour for the most part, labour that requires neither recruitment nor supervision. Even when labour is hired for seasonal peak demands, this is often labour from neighbours and family, so much the same applies.

The commercial farmer, in contrast, incurs the (transactions) costs of recruiting suitable labour and then supervising them to ensure both effort and quality of work, in addition to paying wages. Not surprisingly, commercial farmers mechanise operations even though these may be more costly than a manual alternative.

4.1.2 Jobs off the farm

Agricultural development has multiplier effects, both in production with additional activity both upstream and downstream of the farm, as well as in consumption as spending of additional incomes raises demand for locally-supplied goods and services.

Crops that require processing close to fields[12], either to avoid delays that reduce the quality of the produce (for example, sugar and tea) or to save on the costs of transporting bulky harvests, can generate additional jobs in rural areas.

When additional incomes are spent, this also creates jobs. These multipliers will be strongest when producers spend their increased incomes in the local economy, such as on improved housing, furniture and other simple manufactured goods that may be produced locally, as well as entertainment and services, including health care and schooling. Small-scale family farmers are more likely to spend greater shares of their increased earnings on such local production than larger-scale farmers who have the means to buy up-market imported goods.

Hence, public efforts that stimulate labour-intensive agriculture, crops requiring local processing, and smaller-scale production should reduce poverty and hunger, at the very least in the early stages of development.

But this insight should not be applied blindly. There is little point in promoting labour-intensive agriculture, or supporting smallholders, when labour productivity is low and unlikely to improve by much. Not that this is the norm. When labour productivity is low, there are usually ways to raise this considerably – for example, by using improved seed, or applying fertiliser. The point is that highly productive holdings – of any scale – will generate better returns to the factors of production and stimulate overall economic growth, thereby creating jobs and livelihoods for poor people.

Some large-scale holdings are both productive and intensive in employment. In Senegal, for example, estates have taken over from smallholdings in growing vegetables for export to Europe. Because these estates generate many jobs in the fields and packing sheds, poor people have benefitted. Those working on the estates have higher incomes and less chance of being poor than similar households not so employed (Maertens and Swinnen 2009). Moreover, when women are employed on the estates there are increased chances of their children going to school (Maertens and Verhofstadt 2012).

4.2 Inclusion of smallholders in commercial arrangements

Small-scale producers using natural resources are often quite strongly differentiated by their access to resources and markets, and consequently by their incomes. This is most obvious when comparing districts and regions, but it also applies even within communities and even within communities. It is also true for communities without landlords, where land supposedly is distributed realtively evenly on the basis of need and the ability to cultivate it. More detail about these differences, and ways of thinking about them and their implications, appears in Appendix D.

To what extent, then, are links between formal firms and different kinds of smallholders inclusive? The blunt answer is, not necessarily that much.

Firms tend to engage directly with favoured smallholders – those with enough land, labour and capital to be able to undertake additional activity, and often those in areas favoured by their natural potential and access to markets. Private firms try to get their supplies with the least trouble. If they can obtain their supplies from a few large farms, they will usually do so.

[12] In the wider and longer view, it does not matter much where processing takes place, whether locally in the countryside, in a domestic city or port, or even in another country: general equilibrium effects on poverty and hunger should, given time and functioning markets, be similar. But if processing can be done locally, it is likely to lead to labour-intensive technology being adopted to take advantage of the usually lower wages prevailing in rural areas.

Failing that, they will work with the easiest options among smallholders and that means the best-placed among them. Only when there is no alternative will they look for produce from more marginal small-scale farmers.

Inclusion also has an enterprise dimension. Most examples of innovative arrangements to connect smallholders to markets involve high-value produce, destined for export or middle-income domestic consumers. Few deal with staples: the margins are not usually sufficient to warrant additional effort (Poulton et al. 2008).

Formal firms are not the only ones who may shun marginal farmers. When small-scale producers form groups, those (marginal) farmers seen as not having the capability or character to contribute to the group are likely to be excluded.

Hence, commercialisation of smallholder agriculture may widen inequalities, at least initially. Much depends, however, on three factors. One is the labour intensity of commercialised farming. Some crops and enterprises, such as horticulture, can generate large numbers of jobs. Although this potentially applies at any scale of farming, small-scale farms apply labour more intensively. A second factor is the strength of the links between commercialised farming and the rural non-farm economy, where new jobs can be created for those not directly benefitting from intensified farming. The third factor is the extent to which public policy can help as many smallholders as possible to participate in commercial farming opportunities, to which the discussion now turns.

4.2.1 Encouraging inclusion

If policies are to be inclusive, then in the first place they need to cater to most of the circumstances that rural producers find themselves in.

Macro policies for the rural investment climate and basic economic institutions are needed by all groups and for all activities, as too are rural public goods at the meso level. So long as the rural investment climate enables, rural public goods are delivered, and basic institutions are in place, then some farmers – large-scale producers and the more favoured small-scale operators – will probably invest and innovate, intensifying their operations to take advantage of rising consumer demand.

Land rights, as a basic economic institution, are more likely to be clear and secure for the more favoured producers. Their rights may well be formally recognised in law, as well as being permanent and primary.

More problematic are the rights to land of smaller-scale producers. Their rights tend to be customary, rather than established by statute. Moreover, some households, as commonly applies for herders, hunters and gatherers, hold rights that may be seasonal or secondary or both. Rights to grazing, hunting and gathering in some locations may only matter at particular times, for example for a dry-season grazing reserve. Other rights may be secondary in that another activity takes precedence. Examples here include the grazing of stubble on fields where the primary rights are held by cultivators, or gleaners' rights that apply after the harvest.

Considerable thought has been given in Africa in the last decade or so about how to recognise customary rights without going to the time-consuming and costly business of formally mapping and legally registering titles to land. Recent innovations include registration of existing rights by communities themselves that can then be given legal recognition, as has been done in Ethiopia.

Once these policies are in place, additional policies tend increasingly to be needed by those less favoured small-scale producers. Poor households are more vulnerable to market failures than others. They are most likely to face high transactions costs when dealing with banks, input suppliers and traders. This is because it is more difficult to for them establish their competence and character than it is for larger operators, and they are most likely to be exploited by monopoly power, since they have few options for circumventing monopolistic intermediaries. Women farmers may be more disadvantaged in some market deals compared to men, due to their lack of education, language, social ties and information, as well as prejudice against women. Hence the ways to mitigate and resolve market failure, seen in Section 3.3, potentially favour poor and vulnerable households in particular.

Even some of the limitations in assets faced by marginal farmers are not fixed in stone – some are less binding than others. Smallholders who lack working capital to obtain inputs or additional labour can be contracted in interlocking deals that give them inputs on credit. Those who lack skills and experience can be trained. It is possible to relax the limits of access to land and water, by, for example, measures to encourage land markets[13], or by enhancing the value of small plots through irrigation, soil amendments and conservation works.

In contrast, the disadvantages of areas of low natural potential, or locations so far from markets that transport costs become very large, are less easily overcome[14].

While it is possible for agricultural development to be more inclusive, it strains credibility to imagine that all will be involved[15]. For many of the more marginal rural households, including the landless, the non-farm economy may offer better prospects in the future. Policies to stimulate the rural non-farm economy are needed, as are those that help rural people to participate. The former are, in large measure, those that encourage agriculture: an enabling investment climate and public goods (see Haggblade et al. 2007). The latter comprise investing in human capacity through education and training, backed up by health programmes – which are part and parcel of the rural public goods that should be provided to all[16].

Although households that have marginal resources for agriculture are expected increasingly to secure their livelihoods through other activities, it is likely that they will continue to operate their holdings in the near future. Their priority will probably be producing food for home consumption, while doing so with limited land, labour and capital. For agricultural research and extension, this implies a focus on intermediate techniques of lower intensity than those deployed on the more favoured holdings. Schemes such as the One Acre Fund (see Box 6) that work with farmers who have 0.8 to 2 hectares, many of them women, contribute to this aim.

Finally, there are those who cannot work their way out of poverty for lack of labour – the elderly, the young, the severely disabled and the chronically sick – for whom social protection is indicated.

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13 It remains the case that often when land rentals, sharecropping and land sales take place, the land tends to move from a large landholder to a smallholder. Hence land markets can enhance the access to land of poor farmers.

14 As one informant who manages an investment fund put it, ‘There’s a reason we don’t work in the Sahel.’

15 In the RIMISP schema presented in Appendix D, those most likely to participate with some additional public action are the ‘B’ group.

16 A comparison of policies for development of agriculture and the rural non-farm economy shows considerable overlap. Indeed, the exceptions, such as agricultural research and extension, constitute some of the least costly public investments. Hence there is little trade-off when allocating public budgets.

4.3 Gender inequality – making commercialisation an opportunity for women farmers

Women farmers and their families can benefit enormously from the increased opportunities arising with commercialisation. Some estimate that a US$10 boost to a woman's income improves children's nutrition and health as much as an extra US$110 earned by men (FAO 2014). This is because women are more likely to spend their income on food and other basic goods for the household (Hoddinott and Haddad 1995, Quisumbing et al. 1995: cited in Fischer and Qaim 2012).

Unfortunately, women are far less likely to commercialise than their male counterparts. Women have less ability to participate, owing largely to a lack of opportunity, risk aversion and barriers created by existing gender imbalances. Even when they do participate, they may gain relatively less than men. Finally, there can be side-effects, either harmful or beneficial, that are felt more strongly by the women who participate. The principal facts about women farmers can be summarised as follows, with the detailed evidence set out in Appendix E:

- Women have less access to land, capital and labour than male farmers, making it difficult for them to participate in commercial farming;
- Women may lose access to resources as men commercialise and co-opt resources;
- Women get less access to market opportunities, because men are usually signed up to contracts, and traders are less likely to deal with women;
- The demands of commercial farming can lead to women working so long that they cannot take care of infants;
- On a more positive note, women can benefit directly or indirectly from higher incomes resulting from from higher incomes. These may come from jobs on larger farms, in processing plants, or from sale of crops grown by the household, although much depends on how equitably income is shared within the household.
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4.3.1 Making commercialisation an opportunity for women

Operationally, programmes linking small-scale producers and agricultural workers to markets can be:

- Gender blind: neither distinguishing nor acknowledging gender power relations or the gender division of labour;
- Gender aware in that they address women's and men's practical needs within existing gender relations and divisions of labour;
- Gender transformative in that they challenge existing gender roles and divisions of labour (WFP and ALINe 2011).

Most interventions seem to be gender blind. A review of 30 cases linking small-scale farmers to markets found only a handful where women formed the majority of participants; these included One Acre Fund, a Ugandan potato grower group, some Rwandan coffee cooperatives and a shea nut processing federation in Burkina Faso (Wiggins and Keats 2013a).

This is partly understandable, because programmes focus on boosting production and incomes: they are not designed to challenge long-standing structural inequalities in gender relations. Even where agricultural programmes seek to promote women's welfare, the extent

to which they are able to achieve improved gender relations and promote processes of empowerment for women is often limited (ALINe 2011).

What actions are seen that have promoted gender equity? One approach is to work first and foremost with women rather than men. Forming women-only groups is one possibility.

Women interviewed in Ethiopia, Tanzania and Guatemala as part of a WFP evaluation showed a preference for women-only groups (WFP and ALINe 2011). South Asia has considerable experience of women-only self-help groups which have been used to good effect to increase access to credit and savings[17]; to boost overall household income and consumption, as well as women's self-confidence and esteem; to facilitate social mobility, social capital and political awareness; and to improve participation in decision-making activities (WFP and ALINe 2011).

CARE in Bangladesh used female groups in its SHOUHARDO[18] programme, the groups being formed primarily to boost female solidarity as a route to practical empowerment. These female groups were set within an integrated project of livelihood support, health services and nutrition. SHOUHARDO succeeded in reducing stunting of under-twos, bringing its prevalence down by 16 percentage points between 2006 and 2010, at a time when no progress was seen nationally in reducing stunting. An evaluation found the strongest single determinant explaining this was female empowerment (Smith et al. 2011).

Where women-only groups are not possible, quotas in mixed-gender groups may be a first step to support women's involvement, increase women's visibility and give them a platform from which to claim rights – particularly when complemented by leadership training and other capacity development (ALINe 2011). The WFP's Purchase for Progress (P4P) programme has the target that at least half of the farmers in P4P groups should be women, even if this is not always realised.

Other ways to increase women's participation in commercial agricultural activities include:

- Working with crops that are more traditionally associated with women – including for instance certain pulses, or rice in West Africa, or dairy and poultry in East Africa as opposed to other livestock. At the same time care is taken that traditional women-controlled crops do not become the domain of men as they become more profitable[19] and that the barriers to women's participation in crops traditionally associated with men are removed. The use of transitional hives for backyard-beekeeping in Ethiopia has dramatically improved women's participation in honey production, replacing traditional hives mounted on trees in forest areas which were exclusively men's business (see Wiggins and Keats 2013a Case 21 or Case Study 1 in Tripathi et al. 2012);
- Working with crops that help diversify livelihoods across a household, since women in focus groups stress this as way to reduce risk (WFP and ALINe 2011);
- Encouraging extension agents and field officers to work with women producers through training or other measures – and indeed training women extension agents

17 They have also been used to buy or lease land (Niger) or fish ponds (Bangladesh), with successful outcomes (WFP and ALINe 2011).

18 Strengthening Household Ability to Respond to Development Opportunities. Also means 'friendship' or 'amity'

19 Projects probably need to be at least 'gender aware' to be sure of preventing this, and pro-active steps may be needed to empower women in communities and households to be sure that increasing commercialisation is not eroding women's agency. Monitoring of ongoing projects for gender impacts would also help pick up on instances of this.

who are more likely to encourage other women to participate and who will understand better the barriers they face;
- Targeting the practical needs of women, for instance group-organised microcredit schemes, input acquisition, or transport services may ease some of the specific constraints facing women (Fischer and Qaim 2012);
- Designing programmes to overcome time constraints faced by women, which are often more binding than those faced by men – including, for example, providing care for both children and the chronically ill (WFP and ALINe 2011), improving transport, developing technologies to support planting, weeding or processing[20] and making it easier to obtain water and fuelwood;
- Improving women's functional literacy[21].

Rural public goods can contribute by ensuring that girls get at least secondary education, in lowering barriers to communication and by raising female status. Clean water supplies can reduce the time taken to draw household water and can reduce child sickness. Health services are likely to be of particular benefit to mothers. SHOUHARDO in Bangladesh shows what can be achieved when deliberate actions are taken, through group work, to empower women.

Strategically, the broader agenda of correcting rural gender inequalities includes ensuring secure access to land and water.

Monitoring and evaluation activities that track gender differences can help programmes adjust to reduce inequities, and can highlight the issues and provide evidence to lobby for legislation on rights.

4.4 Avoiding pitfalls: do no harm

4.4.1 Potential causes for concern

Agricultural growth will *usually and generally* benefit those affected directly and indirectly. But perhaps equally important is not the general tendency, but the possible exceptions, where such development has led to harm. Potential harm might arise in the following ways:

- Takeover of land and water by corporations, large farmers and settlers, depriving existing (poor and vulnerable) users of their livelihoods;
- Exploitation of labour in fields or in processing plants;
- Reduced food security from a changed composition of production, use of incomes, and demands on the time of those caring for children;
- Ventures where risks are too high;
- Through degradation of the environment that undermines livelihoods based on natural resources.

[20] For instance, grinding a basin of cassava can take two hours by hand and just one minute with a grinder (ALINe 2011)

[21] Where this is lacking it might be achieved through special training programmes targeting women and peer training, or circumvented using other innovative tools like sharing videos to explain common agricultural extension issues. For example, in India the rural wing of the Self Employed Women's Association used videos recorded and edited by largely illiterate rural women to talk about their farm and household needs, problems, and solutions (ALINe, 2011)

Depriving poor and vulnerable people of access to land and water

Poor and vulnerable people may lose access to land and water when:

- Development involves major changes in land use, such as from herding to cultivation;
- New scales of production are introduced, changing from small- to large-scale operations:
- New arrangements for production occur whereby men takeover women's land.

The first two constitute the clearest dangers. For example, irrigation schemes in dryland areas have sometimes occupied the dry-season grazing areas of pastoralists who are transhumant or nomadic (Sandford 1983). Although the area of land taken for irrigation may be relatively small, it is often land close to a watercourse that provides dry-season grazing: without it, the entire livestock economy may be undermined[22].

In other cases, land being used at low intensity may be appropriated for more intensive use. Where the scheme entails larger-scale production, the result may be that small-scale users of land lose their holdings to a plantation or estate. The recent rise of interest in land in Africa from large-scale concerns since the spike in agricultural prices in 2008 has led to cases where allegedly local people have seen their right to land and water transferred to large-scale investors (von Braun and Meinzen-Dick 2009; Deininger and Byerlee 2011).

For example, when from 2009 Sime Darby established oil palm plantations on a 220,000 hectare concession in Liberia, households lost land. Numbers without access to farmland increased five times after the project began (Balachandran et al. 2012). A 2012 survey showed that communities affected by the development were highly food insecure, more so than nearby unaffected communities.

In principle in such cases, the development contemplated promises better returns to natural resources, so that those gaining could conceivably more than compensate those losing rights[23]. Yet, time and again, compensation to those who have lost rights is either absent or inadequate.

The other source of potential harm applies within the household, when development schemes change crops or techniques that result in land effectively passing from female to male control. For example, when irrigation was developed at Jahally-Pacharr in The Gambia in 1984–1987, produce from the irrigated fields that had been cultivated by women passed to the men. The scheme failed partly because women, not surprisingly, then ceased to work on those fields (Carney and Watts 1990; Webb 1991).

Exploitation of labour

Agricultural labourers are often some of the lowest paid employees in developing world economies. While this may reflect the market outcome when many people seek work with limited opportunities, some employers may be in a position to impose very low pay, discriminate against female workers, employ child labour, or provide poor conditions of work, including exposing their staff to high risks to their health and safety.

On gender differences, in India at the turn of the new century, female rural casual workers on fields earned Rupees (Rs) 29 a day compared to Rs40 for men; while in non-agricultural work, the corresponding average rates were Rs37 and Rs60 a day (Bhalla et al. 2004).

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22 This case illustrates a perennial bugbear with land rights: the rights expropriated are seasonal, unregistered and legally unrecognised. An observer in the wet season would see apparently unused land.

23 For economists, the possibility of the compensation of losers by the winner is the Hicks-Kaldor criterion for welfare improvement.

Child labour remains common in developing countries: 12% of children were working in 65 countries in the late 1990s and early 2000s (Fares and Raju 2007). Given that the main activity undertaken by children was farming, child labour rates tend to rise with the share of agriculture in GDP. In 2005, across the world, an estimated 246 million children worked, with 70% of them engaged in farming (Hurst et al. 2005). They are more than usually likely to suffer accidents. Hours can be long as well, for children, especially when working as part of a migrant family anxious to make as much money as possible on piece rates.

Much rural work, moreover, may be physically hard, sometimes with poor health and safety conditions. ILO (2003) reported 3–4 million people affected by hazardous pesticides every year, with 40,000 deaths as a result – part of an annual toll of 170,000 deaths of agricultural workers related to poisoning and other workplace accidents. Agriculture, the main provider of work in rural areas, is rated as one of the three most hazardous occupations. Given the informal conditions of most agricultural and rural work, few workers have insurance against the consequences of sickness, accidents and unemployment.

Are things any better on large-scale commercial farms? Reports on terms and conditions for labour on large-scale commercial farms are often negative (ILO 2003). But there are great variations.

In Latin America, for example, exports of flowers have boomed, with many new jobs created in gardens, greenhouses and packing sheds. This is especially welcome since the jobs are located rurally where people are under-employed. In Ecuador, the flower farms paid an equivalent of minimum wages and offered probationary and one-year contracts, which in turn gave workers access to social security. While none of these advantages was without flaws, especially from the workers' perspective, the flower boom put an end to the process of out-migration in flower-growing cantons and triggered an inflow of migrants from other parts of the country (Korovkin 2005).

Yet Korovkin reported many drawbacks: employment of youths aged 15 to 18 years, little protection when fumigating the flowers, and female workers obliged to work long hours resulting in too little time to take care of their infants. The last contributed to rice, an easy food to cook, replacing more nutritious foods, such as beans and quinoa, which take longer to prepare. As a consequence, there were more frequent signs of malnutrition among the children of flower workers. Preibisch (1995) found similar problems with flower farms in central Mexico that employed cheap female labour. With no unions, the owners of the farms imposed increasingly tough conditions on workers and paid lower wages than a small-scale farmer would.

But other cases of commercial farming in Latin America tell a different story. Export fruit farming in Chile has been seen notable falls in the permanent agricultural work force, and a rise in the temporary farm work force. Many of the new, seasonal jobs are taken by females, often from households where men have lost employment. This sounds like a recipe for exploitation. But Jarvis and Vera-Toscano's studies (2004) carried out among table grape workers in the early 1990s tell a different story. They found that female workers liked their jobs – including the chance to socialise with other women – and valued the extra income. They had some choice in where they worked among the different packing sheds and were well informed about (piece) rates of pay, working conditions and benefits at the different sheds. Although strikes were illegal, workers could renegotiate rates when conditions changed. Women actually earned more than men, since they were more likely than males to be on piece rates and tended to work in peak seasons when pay was highest.

The most striking account of all comes from Brazil, in the generally poor Nordeste region where in the 1960s dams across the São Francisco River had created the potential for

irrigated farming in the lands around Petrolina-Juazeiro (Damiani 2003). By the mid-1990s some 80,000 ha were under irrigation, producing both export fruit (table grapes and mangoes) on large commercial farms, as well as vegetables (such as tomatoes and onions) on small farms for the domestic market. Farm workers who had unionised were able to negotiate higher rates of pay and better conditions.

What led to this? The growers needed huge amounts of labour – more than 1200 days a year per hectare for grapes – through most of the year, and they valued skilled workers. Unionisation was facilitated by the State federation of unions that had experience of organising sugar cane workers. An ILO campaign against child labour in 1991 encouraged the Ministry of Labour to make legislation against child labour stick. Lastly, some of the farms were owned by large corporations based in São Paulo who were sensitive to risks to their reputation if they were seen as bad employers.

Reduced food security

A long-standing concern is that production for the market, especially of non-staples, might see farmers, especially smallholders, replace food crops for their own consumption with cash crops for sale and thereby reduce their food security.

An early review of this was reassuring. Maxwell and Fernando (1989) reported that countries that produce more cash crops also tend to produce more food crops as well. That still applies. If the growth of production of cereals in the developing world is compared to the growth of other agricultural produce from 1990 to 2010, the correlation is high: 0.95 for Africa, 0.97 for South America and 0.91 for Asia.

What happens on individual farms, however, matters more than national averages. Cash crops could reduce household food security and nutrition in three ways:

- Through reduced production of food on farms leading to lower domestic consumption;
- Through failure to spend incomes from cash crops on food or other items that might contribute to nutrition, such as water and health care;
- From increased demands on the labour of caregivers, leading to less care of infants, in particular too little time to prepare and serve complementary foods.

On the first point, case studies suggest that smallholders, at least in the early stages of development, tend not to specialise their production, even as they produce more for the market. For example, Sharp et al. (2007) report that farm households in Ethiopia diversify their crops and livestock for market, rather than expanding a single enterprise. In Kenya, in areas that have grown coffee for export since the 1950s, it was still the case in the 1980s that as little as 10–20% of the land was under coffee, the rest being devoted to diverse food crops, despite the returns to coffee being far higher than those to staples (Haugerud 1988). In the same country, Tiffen (1992) reported the same reluctance to depend on markets for staple foods in the Machakos District in the late 1980s and early 1990s. More recent studies of commercialising smallholders in Africa (Wiggins et al. 2014) show that this has not changed: by and large, smallholders with crops for market also produce more food.

This reflects not only risk aversion, but also complementarities between food and cash crops. On contract farming schemes, a common observation is that some of the fertiliser and chemicals supplied to grow the cash crop is diverted to staples. For example, in northern Ghana part of the fertiliser supplied by companies was switched to food crops (Dorward et al. 1998). In other cases, fertiliser applied to an annual cash crop planted in rotation with staples may confer some residual benefits to the staple grown the year after. This has been

seen for maize and sorghum after cotton is grown in the Sahel (Bassett 1988), as well as for rice sown on plots previously under green beans in Madagascar (Minten et al. 2011).

Turning to the second issue, not much evidence readily exists on the spending patterns of commercialised small farmers. Older reports offer some reassurance. In the 1980s small-scale farmers in Burkina Faso, Niger, Senegal and Zambia spent more than half of their additional income on food and drink. More detailed breakdowns for Burkina Faso show that most of the food spending, and more than half of all marginal spending, was on cereals (Delgado et al. 1998).

What of labour demands? Producing commercial crops and livestock on small farms nearly always raises the total amount of labour used. However, that does not necessarily mean that members of the households work longer or harder. Hired labour may take the strain and, indeed, the additional income may encourage some households to take some of their gains in less time worked on the farm. It is perhaps not the amount of the work that matters, but who gets additional work: if it falls to women, then children may lose out.

For example, this has been a persistent problem in northern Zambia where women are expected to take care of children, but also do much of the farming of food gardens. When in the past men migrated to work in the copper mines, women were left alone to cope with labour demand. In the 1940s it was observed that meals were infrequently prepared, to the detriment of young children who need frequent meals. Maize commercialisation, even with oxen, in the 1970s and 1980s used more female labour. Studies showed increased child malnourishment with commercialisation despite households having more staples of all kinds. The most likely explanation was lack of female labour to prepare food and especially weaning foods (Moore and Vaughan 1987).

Similarly Gillespie and Mason (1991) report studies, mainly from the 1980s, where the mothers' work affected the nutrition of infants in the Philippines and Kerala and other parts of south India. But the results were qualified by the usually positive impact of additional earnings by mothers. Seasonality sometimes affected outcomes, for example, when demands for planting crops coincided with a higher incidence of disease to which infants were particularly vulnerable.

A more recent and particularly detailed study from rural Nepal (Paolisso et al. 2001) shows that preschool children were less likely to get care from mothers working on cash crops when there was only one child. But when there was more than one child, field work did not detract from child care. Reasons for this surprising outcome included the stronger demand on mothers' time from multiple children, plus the likelihood that mothers with several children would have received more education and training.

Overall, the most wide-ranging, if dated, study is that of the International Food Policy Research Institute (IFPRI) in the late 1980s and early 1990s (see the synthesis by von Braun 1995). This covered 10 countries and showed that, in most cases, commercialisation increased staple food crop production either by bringing in new land or by increasing yields. Incomes increased in most cases for participants, while the demand for hired labour often spread the benefits of increased output. In almost all cases, higher income meant better child nutrition, although the relation was quite weak. There was, however, little evidence, other than for Sierra Leone, of nutrition getting worse under commercialisation.

These findings were confirmed and qualified by DeWalt's (1993) review of these and similar studies. She concluded that:

> *'First, the income effects of shifts to cash cropping are highly dependent on pricing policy for cash crops. Short term gains seen in some schemes are often highly dependent on the maintenance of high prices for commercial crops.*
>
> *Second, those schemes in which subsistence production is protected or stabilized are more likely to show positive results with an increase in income generated from cash cropping.*
>
> *Third, increased income does not translate directly into increased food consumption at either the household or individual (child) level. Shifts in control of income from women to men are important.*
>
> *Fourth, morbidity, especially from diarrheal disease, is an important predictor of child growth. A failure to improve morbidity of children may offset gains in food consumption and, in some instances, a decrease in the time women have to care for their children, as a result commercialization has resulted in greater morbidity among children.'*

It is thus not so much the crop or the degree of commercialisation that matters, but rather the relative prices of food against prices paid for marketed crops; access to land; and who has control over produce and income (DeWalt 1993).

Exacerbated risks

When intensification entails specialisation of activity, risks to producers can rise. More specialised production could leave enterprises more at risk of bad weather, pests or disease. By concentrating sources of incomes it could expose producers to more risks from fluctuating prices. Both sets of risks may be exacerbated when intensification entails substantial borrowing of working or long-term capital.

Often, however, small-scale producers are reluctant to specialise (see above), especially when this might mean reducing the area sown to food crops for household consumption. Some contracting schemes with smallholder out-growers explicitly limit the areas from which contracted farmers can sell produce[24].

Many smallholders, moreover, do not have access to loans – formal or informal – for working capital, so indebtedness is not a problem.

Nevertheless, it is possible for small-scale producers to over-expose themselves to unacceptable risks. For example, the alarming and well-publicised farmer suicides in India correlate with farmer indebtedness (Herring 2008).

Two responses have been seen. One is that mentioned, where contracting firms refuse to buy more from their growers than can be grown on a small part of the growers' farms. The other is to insure farmers against the risks they may be running. One Acre Fund, for example, includes with their inputs package an insurance policy – provided by Kilimo Salama (see Section 3.3, Appendix A) – that covers costs of inputs in the event of a harvest failure.

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[24] One informant told of a large sugar cane out-grower scheme where company employees strongly advised their growers not to plant more than a fraction of their holdings to cane on account of the risk: advice which often fell on deaf ears because the returns to cane were so attractive.

Environmental harm

Intensification of production could lead to environmental harm. Excessive use of fertiliser and chemicals may lead to their run-off to water courses; increased cultivation may leave soils more exposed to erosion; repeated mono-cropping may see soils lose nutrients; excessive irrigation from aquifers may lead to groundwater aquifers being depleted; and inadequate drainage of irrigated fields may lead to their salinisation. More extensive production may see valued habitats – tropical forest and wetlands, for example – converted to cultivation.

All of these are possible when natural resources are used and developed. There is, however, little or no environmental harm that is unavoidable. Almost always technical ways exist to use resources without seriously harming the environment; there are even ways to enhance it[25].

A discussion of how to avoid environmental pitfalls – through public policy to regulate, tax and subsidise, and create new markets – is beyond the scope of this Guide.

Would measures and policies to conserve or enhance the environment require substantial adjustment of the policies discussed here? The simple answer is 'no'. The environmental agenda is often complementary. For example, more effective forms of irrigation can deliver optimal amounts of water to the root zone. The timing and placement of fertiliser can be adjusted for maximum effect on plant growth. Conservation tillage minimises soil disturbance and agro-forestry captures carbon and recycles nutrients. All these are actions whereby yields can be increased and some costs reduced thereby improving farm returns, while water is saved, pollution from excess nitrogen reduced and soil erosion and emissions avoided.

Since 2008 many large-scale investments in African agriculture have been planned. These have come variously from domestic investors, state companies in China and the Middle East, international agribusiness corporations and investment funds in Europe and North America. While the injection of capital and know-how may be welcome, the danger is that land will be taken from vulnerable people. Inappropriate schemes may lead to environmental damage as well. Hence much interest has been shown in the principles of responsible investment to cover social and environmental risks.

A survey of such investments shows, perhaps surprisingly, that many of these are in financial difficulty. It is however the investments that have been responsible, in their careful consultation with communities and planning, which have fared better than those that have not (World Bank and UNCTAD 2014). The good news is that taking care is not only socially and environmentally responsible, but also profitable: perhaps even a pre-requisite for business success.

25 For example, intensification and commercialisation of smallholder farming in Machakos from the 1950s to the 1990s saw less soil erosion and increased forestry (Tiffen et al. 1994). More intensive production in parts of Burkina Faso has seen a similar greening of the local environment (Mazzucato and Niemeyer 2001; Reij and Smaling 2008).

4.5 Summary of main points

This section discusses how to enhance the development impacts of private engagement with smallholders and to avoid the pitfalls. It makes the following key points:

- A prime route from more intensive and commercial small-scale farming to reduced poverty and hunger arises from the creation of additional – and more productive – jobs on farms, in the supply chains and generally in the rural economy, as multipliers in consumption create demand for local services;
- Choosing labour-intensive activities – but with higher productivity – and choosing crops that require local processing will help create employment. Stimulating rural non-farm activity will ensure linkages. Fortunately most of what is needed to do this forms part of the agenda of agricultural development – the investment climate, public goods and tackling failures in financial markets;
- Private sector development alone will not necessarily be socially inclusive. Commercial firms are likely to work first and foremost with the better-placed smallholders – and with male farmers;
- Some marginal farmers can be helped by public support to increase their chances of inclusion. Again, fortunately, the basics needed for agricultural development, plus above all remedying market failures, are all the more important for marginal farmers – since they are least able to cope with deficiencies and failing markets;
- Not all of the marginalised can be included, hence measures to stimulate the rural non-farm economy matter. For some, the non-working poor, social protection has to be available;
- Women are often at a disadvantage when commercial opportunities beckon. They are left on the back foot for lack of land, water, time, education and social links, and are fettered by social norms which restrict their mobility and interactions with (male) traders;
- Much can be done to remedy these disadvantages, by paying attention to women's strategic and practical needs in agricultural development – for example, by choosing crops they can grow, by training and employing female extension agents, by forming women's groups, and by developing technologies that save women time, etc. Allowing women to participate equally with men can be hugely socially beneficial. Child nutrition, for example, responds much more to women's incomes and status than it does to men's;
- While more commercial small-scale agriculture may generally be good, there are concerns about potential drawbacks, some of which may only affect a minority, but often the poor and vulnerable who cannot afford any losses. The section discusses the potential loss of land and water, exploitation of labour, reduced food security, higher risks in markets and environmental damage. None of these are inevitable, but careless and unwise interventions could lead to such harm.

SECTION 5

Key messages for advisers and policy makers

Three key messages summarise the main themes of this Guide: promoting economic growth based on private enterprise; inclusive development; and learning and replication.

5.1 Promoting economic growth based on private enterprise

The importance of basic conditions for agricultural growth

It is easy to see agricultural growth as unusually demanding, or just plain difficult. That is understandable, as agricultural development is often expected to achieve a wide range of goals – economic growth, job creation, reduction of poverty, conservation of the environment and reduction of inequalities by social group, gender and region. Moreover, since agriculture depends so heavily on the physical environment, which varies substantially over the large areas dedicated to agriculture in most LICs, the specific measures likely to stimulate agriculture will similarly vary. No single detailed blueprint exists for agricultural development.

That said, the importance of basic principles should not be ignored. In recent times it is hard to find an LIC where the basics are in place – a reasonably enabling rural investment climate, a supply of rural public goods commensurate with the income level, and basic economic institutions – that has not seen agricultural growth exceed population growth. Across the world, industrialised and developing, 27 countries achieved an average agricultural growth of more than 3.5% a year between 1990/92 and 2004/06. All these countries, except Kuwait, came from the developing world[26] – 18 of the 27 were LICs in 1991.

Private enterprise has to realise returns

Formal firms will work in agriculture and with smallholders provided the activities give reasonable returns to capital, labour and land. The same applies to small-scale producers contemplating working with formal firms. It helps if there are relatively simple ways to raise agricultural productivity, above all in returns to labour.

These conditions may not be in place at the start of any initiative. Indeed most agricultural development projects, private or public, contemplate improving productivity, or raising output prices at the farm gate – by, for example, reducing transport cost to market, or lowering the cost of inputs. But there needs to be a reasonable expectation of attractive returns in the near future.

This seems so obvious as to be barely worth mentioning, but the number of development initiatives that have failed, because the returns to participants from recommended activities were very low or negative, is legion[27].

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26 None of these 27 were OECD countries in 1990/92. The fastest growing agriculture among OECD members was New Zealand at 2.5% a year. The USA, by comparison, ranked 75th in the world.

27 A recent example is the over-enthusiastic promotion of jatropha as a biofuel feedstock, despite the usually very low margins to farmers, for a product that has next to no alternative

Market failures represent a great challenge – but offer great rewards …

In LICs many markets will be under-developed and imperfect, and especially so in rural areas. They plausibly constitute a major impediment to investment and innovation; at worst they trap poor households in poverty. It is no surprise that so many of the private initiatives and investments that engage smallholders include institutional arrangements designed to overcome some of these market failures. In many cases the success of the initiative depends on making these arrangements work effectively.

Of the market failures that arise, those in financial services are often the most challenging. It is not for nothing that formal rural financial services are so lacking across so many LICs. The challenge of improving these can hardly be understated.

Since market failures usually hit the poor harder than most, correcting these failures can be especially effective in translating growth into poverty reduction.

… learning processes are the way to overcome them

Few such arrangements can be blueprinted. Even if there are models that can be imitated in outline, the detail needs tailoring to specific cases. For example, contracting of smallholders can work well, but the precise contract must be developed to suit the case. Arrangements may well require adjustment in practice and as circumstances change.

Experienced managers thus stress the importance of the processes of active learning. This implies commitment to making initiatives work that can extend over years – five or more may be necessary. Contingencies, difficult to predict in advance, will almost always arise, demanding time and resources to resolve. Leaders and managers need to monitor emerging outcomes, then judge whether divergence from expectations indicates either natural variance that will correct itself given time, or something that requires change.

Someone has to lead these processes. It may be someone in business, but formal firms are only likely to lead when the opportunity promises sufficient rewards and when there is no simpler way to obtain these. Public schemes may be able to provide incentives to private firms to do this, or may instead pay others to champion processes. Investing in such intermediation may pay off. The rise of the challenge funds reflects this hypothesis, as does the existence of the several NGOs – such as Technoserve, SNV Netherlands, CLUSA, etc. – whose core business is championing linkages with a strong focus on creating sustainable businesses.

Forums that bring together key stakeholders, above all firms and the producers they deal with, can make a difference. Institutional arrangements, by definition, concern stable expectations that form when parties to a deal share perspectives and trust one another. When managers from formal firms meet small-scale producers, their first concern is typically quality and consistency of supply. When farmers meet buyers their first concern may simply be price[28]. Without some sharing of ideas, these perspectives can lead to mistaken expectations that result in failed initiatives.

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use other than as a feedstock. Low returns to jatropha were documented well before jatropha mania broke out in the mid-2000s. It was not just NGOs lacking economists that were sucked in, other formal investors set up scheme after scheme in Africa to promote jatropha. Not one of these has ever made a profit; many have yet to produce a drop of biodiesel.

28 The poorer and more marginalised the producers, the more likely that this will be: the greater the temptations of opportunism. Marginal farmers have often experienced so many bad outcomes that they do not readily trust strangers offering a new deal.

5.2 Inclusion and representativeness

Do not expect too much commercial engagement with marginal farmers

Agricultural growth in which smallholders are the main actors will usually lead to growth with poverty reduction. Direct inclusion of small-scale producers in commercial schemes may, however, be limited. For the reasons already stated, buyers prefer to deal with large-scale farmers or failing that with the better-placed smallholders, while marginal farmers find it difficult to fulfil contracted production.

Expectations of inclusion should thus not be set too high, and especially when dealing with production for high-value and export markets. It is easy to be seduced by innovative schemes where smallholders, often the most favoured, produce high-quality export produce, to schedule, certified to comply with supermarket standards or organic or Fairtrade standards. Yet, in the medium term, it is unlikely that more than a small fraction of producers in LICs will be part of such supply chains, partly because participation demands so much, but mainly because these markets are relatively small.

Most smallholders, at least in the near future, will remain informal enterprises connected to other small-scale, informal firms in supply chains (Vorley and del Pozo 2012). Hence, working to resolve the problems that affect informal markets matters. Making sure the basic conditions described are in place, plus resolving market failures, becomes key to progress. Schemes that tackle the issues surrounding domestic supply chains where informality is rife and where staples dominate the produce traded, are less common than those for higher-value produce. But they do exist, and some show promise. One Acre Fund has been mentioned several times, but there are other such initiatives, including AGRA's coalition of partners working with small farmers growing grains and pulses in northern Ghana (Wiggins and Keats 2013a, Case 14).

Most smallholders in Africa probably already live in peri-urban areas: commercialising locations are not exceptional

Many of the examples of innovative arrangements seen and mentioned here come from places with not only reasonably good natural resources, but also with good access to cities and ports. So how representative are they? Perhaps more than some think.

Low-income Africa may be beginning to see the transformations of supply chains for staples reported (by Reardon et al. 2012) for China, India and other parts of emergent Asia (Reardon et al. 2013). Casual observation offers some support. Anyone who visits farmlands within two hours' drive on good roads of large cities in Africa – for example the tomato fields of Brong north of Kumasi, the onion plots of Lume south-east of Addis Ababa, or the dairy pastures of Nyahururu, north of Nairobi – will see plenty of small-scale producers who have intensified production. Local market centres bustle with the trading of produce, input dealers can be found, while shops offer consumer goods to farmers with increased incomes.

These peri-urban areas may comprise only a minority of the territory of most LICs, but demographically they may be typical, reflecting the circumstances of half or more of the rural population. That is because population is concentrated. Some 75% of the rural population of sub-Saharan Africa occupy just 20% of the land, with an average settlement density of 120 persons per square kilometre. Indeed some 58% live on just 10% of the land where the density rises to more than 165 per square kilometre (Jayne et al. 2014 forthcoming). Most of these densely-settled lands lie within the accessible catchment of large cities.

Commercial small-scale farming may thus become more inclusive, even if it does not reach all

This is good news for inclusion in more commercial arrangements. Of the conditions that condemn some smallholders to marginality, location is perhaps the most constraining. Limited access to capital, skills and even land and water are less binding. Hence there are possibilities that those smallholders who have the means to take up new opportunities will be joined by others, especially if public policy aims to increase the assets of the marginalised.

We still do not know, however, to what extent commercialising smallholders will remain exceptional, or to what extent they are frontrunners who will in time be joined by more of their neighbours. That is partly because studies that show change through time, as opposed to snapshots at one moment, are few. National statistics ideally should pick up trends among the bulk of farmers, but collection systems are weak, most statistics being compiled on the best estimates of ministry field staff, who may or may not be observing key changes.

This is not to suggest that all or most smallholdings might become commercial. On the contrary, in the coming decades we can expect – assuming that urban economies grow and thrive – rural people to leave agriculture. This will be the subject of another Evidence on Demand paper*, Stepping out of agriculture*, which will be prepared in late 2014.

5.3 Learning lessons and scaling out

What do we know about the suite of initiatives to stimulate formal private engagement with agriculture funded by DFID over the last five or so years – enterprise challenge funds, financial deepening, trade facilitation, etc.? Most are so recent that at most there are mid-term reviews, but no evaluations of outcomes and impacts. Hence we can only comment on intent and actions rather than outcomes.

DFID initiatives address a major challenge

Resolving rural market failures is a great challenge for agricultural development in LICs. This is the priority once basic conditions are met. To see, therefore, DFID-funded initiatives taking on this challenge is good – the potential both to raise growth rates and to reduce poverty is high.

Governments, above all in Africa, however, seem lukewarm towards these ventures. The challenge funds or similar initiatives have not yet been copied. The Ethiopian Agricultural Transformation Agency (ETA) may be an exception, as may be the Rwanda Agricultural Board, but few other governments seem in a hurry to set up similar initiatives. Most government programmes, at national or regional levels, focus on investments in physical infrastructure, human capital and agricultural research and extension. There is nothing wrong with this, but the ambition is limited.

It will be interesting to see if the passive acceptance of these programmes by governments changes to enthusiasm as and when these initiatives demonstrate results.

Working models are emerging for replication and scaling out

Last year (Wiggins and Keats 2013a) we argued that the search for models to scale up as though they were blueprints was a chimera – only processes could be replicated. That may have overstated the point. Some models are prospering, operating on a scale that means the model has passed from being a (costly) pilot that seeks only effectiveness, to a working

model that passes the test of efficiency as well and hence is ready for widespread replication.

One Acre Fund distributing inputs for staples to 130,000 clients is an outstanding example. Yet to date it remains a one-off venture. Donors set up new ventures, governments establish input subsidy programmes, CAADP compacts are signed – all aiming to stimulate production of staples by small farmers – and yet models like this seem to sit on the sidelines. Presentations by OAF staff may be warmly received at conferences and workshops, but so far donors, foundations and governments with major funds have not imitated the model.

This may be a matter of time. After all the Anand model of dairy cooperatives remained a Gujerati enclave for 20 years before the government of India took it as the template for Operation Flood and rolled it out nationally in the 1970s. OAF is barely five years in the making.

In the meantime there is work to do to document working models and to identify those pilots that deserve to go to working scale.

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Further study

Key readings

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Stimulating agricultural development	World Bank, 2007, **Agriculture for Development**, World Development Report 2008, World Bank, Washington DC https://openknowledge.worldbank.org/handle/10986/5990
Cross-country evidence on agriculture's impacts on poverty	Christiaensen, Luc, Lionel Demery and Jesper Kuhl, 2011, '**The (evolving) role of agriculture in poverty reduction. an empirical perspective**', Working Paper No. 2010/36, Helsinki: UNU Wider http://www.wider.unu.edu/publications/working-papers/2010/en_GB/wp2010-36/
Stimulating the rural non-farm economy	Haggblade, Steven, Peter B R Hazell and Thomas Reardon, 2007, **Transforming the Rural Nonfarm Economy: Opportunities and Threats in the Developing World**, Johns Hopkins University Press. For an overview that draws heavily but not exclusively on this large volume, see: Wiggins, Steve, 2014, '**Rural non-farm economy: current understandings, policy options, and future possibilities**, Chapter 17, Peter B. R. Hazell & Atiqur Rahman (Eds), New directions for smallholder agriculture, 2014, Oxford: Oxford University Press
Linking small farmers to markets	Campbell, Ruth, 2010, **'Implementation best practices for value chain development projects'**, MicroREPORT #167, September 2010, Washington DC: USAID https://www.microlinks.org/library/implementation-best-practices-value-chain-development-projects Maatman, Arno in collaboration with V.A. Clottey, A. Diallo, K. Djagni, I. Duniya, Y. Duplessis, K.O. Gyasi, M. Kabore, F. Keita, K. Kondo, A. Konlambigue, E. Kpogan, A. Nobre, U. Rudiger, and A.S. Traore, 2011, **Competitive Agricultural Systems and Enterprises (CASE): a grassroots approach to agribusiness development in sub-Saharan Africa**. Volume 1: Reference framework and early experiences, IFDC and CTA, Wageningen NL Mitchell, Jonathan and Christopher Coles, 2011, **Markets and Rural Poverty. Upgrading in Value Chains**, International Development Research Centre and Earthscan, Ottawa, London, Washington, DC Shepherd, Andrew W., 2007, **Approaches to linking producers to markets. A review of experiences to date**, Agricultural Management, Marketing and Finance Occasional Paper 13, Rome: Food And Agriculture Organization of the United Nations ftp://ftp.fao.org/docrep/fao/010/a1123e/a1123e00.pdf Vermeulen, Sonja and Lorenzo Cotula, 2010, **Making the most of agricultural investment: a survey of business models that provide opportunities for smallholders**, IIED/FAO/IFAD/SDC, London/Rome/Bern. http://pubs.iied.org/12566IIED.html Vorley, Bill, Mark Lundy and James MacGregor, 2009, **'Business models that**

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On the dominance of informality in agricultural value chains	Vorley, Bill, Ethel del Pozo-Vergnes and Anna Barnett, 2012, **Small producer agency in the globalised market: Making choices in a changing world**, IIED, London; HIVOS, The Hague http://pubs.iied.org/16521IIED.html
Experience of certification of smallholders in Africa	Jaffee, Steven, Spencer Henson and Luz Diaz Rios, 2011, **Making the grade: Smallholder Farmers, Emerging Standards, and Development Assistance Programs in Africa**. A Research Program Synthesis, Report No. 62324-AFR, Washington DC: World Bank https://openknowledge.worldbank.org/bitstream/handle/10986/2823/623240SR0White0W110Making0the0Grade.pdf?sequence=1
Farmer associations in Africa	Shiferaw, B., Kassie, M., Muricho, G. (2011) **Rural Institutions and Imperfect Agricultural Markets in Africa: Experiences from Producer Marketing Groups in Kenya**. In: Esther Mwangi, Helen Markelova, and Ruth Meinzen-Dick (eds.) Collective Action and Property Rights for Poverty Reduction Princeton Editorial Associates (Chapter 5) http://www.capri.cgiar.org/wp/brief_poverty.asp
On DFID's portfolio of recent initiatives to link small farmers to market	Wiggins, Steve & Sharada Keats, 2014, **Smallholder engagement with the private sector**, Topic Guide, Economic and Private Sector, Professional Evidence and Applied Knowledge Services, London: Overseas Development Institute http://knowledge4food.net/smallholder-engagement-private-sector/ Palmer, Keith, 2010, **Agricultural growth and poverty reduction in Africa. The case for patient capital**, Briefing, March 2010, London: AgDevCo http://www.agdevco.com/sysimages/the_case_for_patient_capital_rpt16.pdf
Private sector role, social and impact investment	Karamchandani, Ashish; Mike Kubzansky & Nishant Lalwani, 2011. March 2011. **Is the Bottom Of the Pyramid Really for You?** Harvard Business Review http://hbr.org/2011/03/the-globe-is-the-bottom-of-the-pyramid-really-for-you/ar/1

Relevant websites

Plenty of useful material, much of it from the last five years, can be found on the web. Many sites explain the approach to agricultural development taken by the agency and illustrate it with case studies, often many of them. While description of cases is not lacking, more detailed analysis of what works, including reviews and evaluations of experiences are less frequent: the web sites are those of agencies whose first priority is to act, for whom evaluation is at best a second consideration.

A near comprehensive list of web sites on inclusive agribusiness, including those that deal with implementation support, financing, research, business networking and policy dialogue sites can be found in:

> Growing Business with Smallholders. A guide to inclusive agribusiness, 2012, Christina Gradl, Christina Kükenshöner, Juliane Schmidt, Christiane Ströh de Martínez. Bonn and Eschborn, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Their list is reproduced for the sections on private foundations, business environment and policy platforms.

Networking and consortia sites: *NGO and research centres* specialising in linking smallholders to the rest of the supply chain

ACDI VOCA – Agricultural Cooperative Development International and Volunteers in Overseas Cooperative Assistance has worked since 1963 to share the expertise of US cooperatives on local and community economic development with developing world partners. A large organisation, it operates in 33 countries with more than 1500 staff. www.acdivoca.org

Agri-ProFocus – A partnership based in the Netherlands in 2005 that promotes smallholder entrepreneurship currently active in 14 countries of Africa. www.agri-profocus.nl

BoP (base of the pyramid) Innovation Center – develops and researches programmes dedicated to sustainable, private-sector-led innovation at the base of the pyramid. http://www.bopinc.org/

IFDC 2SCALE – Towards sustainable clusters in agribusiness through learning in entrepreneurship. Implemented by a consortium of three partners – IFDC, Base of the Pyramid Innovation Center (BoPInc.) and International Centre for Development-oriented Research in Agriculture (ICRA), the programme promotes agribusiness clusters in 12 countries in Africa. http://www.ifdc.org/Projects/Current2/East_Southern_Africa_Division/2SCALE_Toward_Sustainable_Clusters_in_Agribusiness/

International Institute for Environment and Development (IIED) – a development research centre that has long had a programme on sustainable markets. Co-ordinated the Regoverning Markets initiative. www.iied.org/shaping-sustainable-markets, http://www.iied.org/regoverning-markets

Seas of Change – Facilitated by the Wageningen UR Center for Development Innovation and the Sustainable Food Lab, Seas of Change aims to research and promote inclusive agricultural development that links small farmers to markets. www.seasofchange.net

SNV – Netherlands-based NGO that works with local partners to equip communities, businesses and organisations with the tools, knowledge and connections to increase incomes and gain access to basic services. www.snvworld.org

Sustainable Food Lab – A consortium of non-governmental organisations, and research centres who cluster around the questions of how to link smallholders in the South to processors and retailers in the North – and to do so in ways that are environmentally sustainable and above all that reduce emissions. www.**sustainablefoodlab**.org

Prorustica – Company that facilitates partnerships in order to foster growth in agricultural commodity markets. *www.prorustica.com*

Swisscontact – founded in 1959, the Swiss Foundation for Technical Development Aid brings Swiss technical and business expertise to help local development in the developing world, currently operating in 25 countries. http://www.swisscontact.org/en/home.html

Technoserve – Focuses on developing entrepreneurs, building businesses and industries, and improving the business environment in the agriculture sector. www.technoserve.org

Mesopartner – private consultancy that facilitates local market development, particularly in rural areas, with stakeholder participation. *www.mesopartner.com*

NCBA CLUSA – Founded in 1916 as the Cooperative League of the USA (CLUSA), the National Cooperative Business Association (NCBA) has had an international programme since 1963, currently promoting cooperative business in 17 developing countries. http://www.ncba.coop

CARE Canada – strong record of M4P work. http://care.ca/our-work/economic-development

Donor-funded initiatives to stimulate formal private business to benefit small-scale farmers

USAID Feed the Future – promotes inclusive agriculture in 19, mainly low incomes countries. http://www.feedthefuture.gov/

AgDevCo – Invests "social venture capital" to create commercially viable agribusiness investment opportunities in sub-Saharan Africa. www.agdevco.com

AECF – Africa Enterprise Challenge Fund www.aecfafrica.org

FDT – Financial Deepening Trust www.fsdkenya.org/new

FoodTrade – Eastern and Southern Africa http://foodtradeesa.com/

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

Katalyst – Bangladesh www.katalyst.com.bd

LIFT Burma – Livelihoods and Food Security Trust Fund http://lift-fund.org/

M4P Hub – repository of information on Making Markets Work for the Poor. http://www.m4phub.org

New Alliance for Food Security and Nutrition - https://www.gov.uk/government/collections/the-new-alliance-for-food-security-and-nutrition-corporate-frameworks and http://www.usaid.gov/unga/new-alliance

SAGCOT – Southern Agricultural Growth Corridor of Tanzania www.sagcot.com

TMEA – TradeMark East Africa www.trademarkea.com

UNDP Growing Inclusive Markets (GIM) – Conducts research on inclusive business models and their ecosystems. *www.growinginclusivemarkets.org*

USAID Microlinks – large repository of cases, evidence and expertise, the result of bringing together US expertise on micro-enterprise development. http://www.microlinks.org

Private foundations and funds

Acumen Fund –A non-profit global venture fund that uses entrepreneurial approaches to solve the problems of global poverty. *www.acumenfund.org*

Bill & Melinda Gates Foundation – Supports inclusive agribusiness development as one of its focus areas. *www.gatesfoundation.org*

Grassroots Business Fund – A hybrid non-profit/for-profit model, partnering with businesses to provide them with both long-term investment capital and business advisory services needed to overcome challenges. *www.gbfund.org*

GroFin – Connects the growth finance sector, which provides risk finance, with small and medium-sized businesses in emerging markets. http://www.grofin.com

Rockefeller Foundation – Works to promote growth with equity by granting the poor greater access to life-improving opportunities, and by enhancing community and institutional sustainability in the face of crises and chronic stress. *www.rockefellerfoundation.org*

Root Capital – Non-profit social investment fund that grows rural prosperity in poor, environmentally vulnerable places in Africa and Latin America by lending capital, delivering financial training, and strengthening market connections for small agricultural businesses. *www.rootcapital.org*

Business environment

Business Call to Action – Fosters progress of the Millennium Development Goals by challenging companies to develop inclusive business models. *www.businesscalltoaction.org*

The Practitioner Hub – Platform for inclusive business practitioners to connect, communicate and share experiences. *www.businessinnovationfacility.org*

Value Links: International Value Links Association e.V. – Network of practitioners focusing on value chain development. *www.valuelinks.org*

World Business Council for Sustainable Development (WBCSD) – Forum for companies to discuss sustainable development. *www.wbcsd.org*

Beira Agricultural Growth Corridor (BAGC) – A joint venture including governments, private investors, donor agencies and regional organisations, aiming to boost agricultural productivity in Mozambique and the wider region. *www.beiracorridor.com*

Better Cotton Initiative (BCI) – A collaborative multi-stakeholder initiative that promotes environmental and social improvements in the cotton farming industry. Countries currently involved include Brazil, India, Mali and Pakistan. *www.bettercotton.org*

Biodiversity Partnership Mesoamerica (BPM) – A joint initiative that aims at protecting biodiversity in Mesoamerica. *www.bpmesoamerica.org*

German Initiative for Agribusiness and Food Security in Emerging and Developing Economies (GIAF) – Aims at fostering cooperation between the German private sector and public sector institutions, with the objective of encouraging sustainable growth in the agricultural production and food sectors in emerging and developing countries. *www.germanfoodpartnership.org*

Rainforest Alliance – Works to conserve biodiversity and ensure sustainable livelihoods by transforming land-use practices, business practices and consumer behaviour. *www.rainforest-alliance.org*

Sustainable Agriculture Initiative (SAI) – A food industry initiative to support the development of sustainable agriculture worldwide. *www.saiplatform.org*

The Sustainable Trade Initiative (IDH) – Accelerates and scales sustainable trade by building impact-oriented coalitions involving partners from different sectors. *www.idhsustainabletrade.com*

UTZ Certified – Certification for sustainable farming practices. Enables farmers to learn better farming methods, improve working conditions and protect the environment. http://www.utzcertified.org

West Africa Seed Alliance (WASA) – Seeks to provide smallholder farmers in Ghana, Mali, Nigeria, Burkina Faso and Niger with access to high-quality seeds and planting materials. *www.icrisat.org*

Crop specific forums

African Cashew Initiative (ACI) – ACI works to increase the competitiveness of African cashew production and reduce poverty in five African countries. *www.aci.africancashewalliance.com*

Bonsucro – roundtable for sugar producers and processors with nearly 200 members from 27 countries that aims for a sustainable and socially responsible sugar supply chain. Operates the independent certification, the Bonsucro Standard. *Bonsucro.org*

Competitive African Cotton Initiative (COMPACI) – Promotes improvements in cotton production in sub-Saharan Africa in compliance with ecological, economic and social sustainability criteria. *www.compaci.org*

Ethiopian Coffee Trademarking and Licensing Initiative – Initiative facilitating dialogue and cooperation between Ethiopian coffee farmers and exporters, with the goal of setting long-term strategies for brand management and promotion. *www.ethiopiancoffeenetwork.com*

Round Table on Responsible Soy Association – A multi-stakeholder initiative which aims to facilitate a global dialogue on soy production that is economically viable, socially equitable and environmentally sound. *www.responsiblesoy.org*

Roundtable on Sustainable Palm Oil (RSPO) – A non-profit association that brings palm oil industry stakeholders together to develop and implement global standards for sustainable palm oil. *www.rspo.org*

Policy dialogue platforms

Alliance for a Green Revolution in Africa (AGRA) – Public-private initiative to achieve food security and prosperity in Africa through the promotion of rapid, sustainable agriculture growth based on smallholder farmers. *www.agra-alliance.org*

Comprehensive Agriculture Africa Development Programme (CAADP) – The multi-stakeholder platform addresses policy and capacity issues across the entire agricultural sector and African continent to increase agriculture-led growth. *www.nepad-caadp.net*

Farming First – Farming First is a multi-stakeholder coalition of organisations, including many agricultural input companies. It supports comprehensive stakeholder consultation processes aimed at establishing stable, long-term policy and regulatory frameworks. http://www.farmingfirst.org

Grow Africa – Partnership platform that seeks to accelerate investment and transformative change in African agriculture based on national agricultural priorities. *www.growafrica.com*

Sustainable Commodity Initiative (SCI) – A joint initiative by the International Institute for Sustainable Development (IISD) and the United Nations Conference on Trade and Development (UNCTAD), aiming to ensure that sustainable practices are adopted in commodity production and trade worldwide. *www.sustainablecommodities.org*

Sustainable Trade Initiative – Convenes coalitions of leading companies, civil society organisations and governments with the aim of boosting sustainable production and consumption worldwide; goals include poverty reduction, safeguarding the environment and spreading fair and transparent trade practices. *www.idhsustainabletrade.com*

World Economic Forum – New Vision for Agriculture – Involving public and private actors, the platform aims to develop a shared action agenda and foster multi-stakeholder collaboration to achieve sustainable agricultural growth through market-based solutions. *www.weforum.org/issues/agriculture-and-foodsecurity*

Appendix A Further examples of innovative institutional arrangements

A1 Micro-banking: Bank Rakyat Indonesia

The Bank Rakyat Indonesia (BRI) is a state bank concerned with agriculture, founded more than a century ago. In the early 1980s reforms of the finance sector in Indonesia saw the BRI create a micro-banking division. It operates through local outlets, more than 4000 of them. These offer just two services: a saving account that offers participation in a lottery, and a credit line open to all uses.

The Division has been highly successful, above all in attracting savings. By 2009 there were no less than 21 million accounts with a total value of US$8 billion, with an average of US$377 per account. There are many fewer loans – in 2003 they were only 3 million of them, with portfolio value at half that of the savings accounts. Loan sizes vary between US$35 and US$5800. The Division makes profits: worth US$787M net in 2009. Since other divisions of the BRI have made losses, it is probable that micro-banking has saved the agency from insolvency. Moreover, since micro-banking mobilises local resources, it has allowed the agency autonomy from funding from central government or donors, and insulated the Bank against foreign exchange risks that hit other banks hard in the 1998 Asian financial crisis.

Success in this case seems to result from:

- Having staff in local agencies who have knowledge of competence and character of their clients;
- Incentives for staff to perform, since they are rewarded for generating profits at local units and penalised for losses;
- Simple and clear procedures that apply to only two products that keeps things straightforward for staff and clients; and,
- Interest rates on loans that cover costs – interest rates have reached 44% a year, which may seem high, but reflects administrative and other transactions costs for small-scale loans.

It would stretch a point, however, to describe the Division as only dealing with the poor. There may be 4000 units, but they are still based in rural market centres and have limited outreach to populations in more remote areas.

Sources: Seibel 2005, Seibel et al. 2010

A2 Kilimo Salama: micro insurance in Kenya

Kilimo Salama provides insurance to farmers in Kenya and Rwanda to cover risks of bad weather. Most clients so far are those obtaining small loans for inputs, around the US$100 mark. When farmers lift inputs from dealers, their insurance is scanned in, then the policy exists as an SMS sent to the farmer's mobile. Pay-outs are based on local weather station reports: when rains fail by specified margins at the local station, pay-outs are triggered automatically and delivered by the M-Pesa mobile money transfer scheme operated by Safaricom in Kenya. With no claims and no judgment of losses, transactions costs fall dramatically, aided by use of mobile technology that eliminates paper.

The scheme was piloted in 2009, with start-up funding from Syngenta Foundation and the International Finance Corporation (IFC), among just 200 farmers in Kenya. An insurance company provides the commercial insurance, while the mobile phone operator provides the information.

The scheme has grown rapidly. By 2013 more than 185,000 farmers in Kenya and Rwanda were insured. Most insurance is against small-scale input loans, but schemes are being developed for those growing seed on contract, for dairy farmers to insure credit for inputs, and a replanting scheme linked to seed purchase. There is also a funerals package that covers debts when debtors die: this has 56,000 users in 2013. The scheme will be rolled out in Nigeria and Tanzania in 2014.

Early evidence suggests that those with insurance invest more on their farms and obtain higher incomes. This is still a young experience, but promising.

Sources: IFC 2012, Syngenta Foundation 2013

A3 Katalyst training of input dealers, Rangpur, Bangladesh

Katalyst is a market development programme in Bangladesh, using a 'making markets work for the poor' (M4P) approach (see Box 2A). It aims to facilitate business that links farmers to markets.

An example of this comes from their work with vegetable farmers in Rangpur, northern Bangladesh. An estimated two-thirds of small and marginal farms in Bangladesh grow vegetables commercially, while some 80% of rural women are involved in producing homestead vegetables. Productivity, however, is relatively low: lower than in comparable countries such as China and India.

Katalyst sought to improve information and knowledge in the supply chain, in particular by training input suppliers to provide technical advice to their farmer customers. In partnership with Syngenta, Katalyst developed a three-day training programme for 480 retailers in Rangpur. With better advice on appropriate inputs based on a soils test, one such customer farmer was thereby able to apply less fertiliser and pesticide while actually raising yields, with substantial increase – more than US$150 – to the gross margin. Others reported similar outcomes: less application of inputs, but with more effective results in higher yields.

At the end of its first phase in 2007, Katalyst had benefitted some 51,000 small-scale producers with better access to inputs and services; with indirect beneficiaries estimated at 315,000. By 2013 it has expanded its operations to reach 2.4 million farmers and small-scale businesses, with an estimate of US$295 million increase in participant incomes.

Sources: Katalyst website, accessed Feb 2014; DFID, 2012; SDC, 2011; Rana, 2011; Gibson, 2005

A4 Sustainable Food Laboratory's learning journeys*

The Sustainable Food Lab is a consortium with members from food business and farm inputs supplies, non-governmental organisations, and research centres who cluster around the questions of how to link smallholders in the South to processors and retailers in the North – and to do so in ways that are environmentally sustainable and above all reducing emissions. A secretariat services the grouping with offices in Vermont and California.

One way they facilitate these links is by organising learning journeys that see buyers touring a country to meet with smallholders. Journeys have taken place to Ethiopia, Costa Rica and Peru. In 2012 more than 100 Lab members convened in the Dominican Republic for four days. There, learning journeys took place to meet members of a dairy association, organic banana plantation, rice producers and workers, artisanal fishing communities, and members of a natural-resource protection association in the north-west where they met cacao farmers and those working with agro-forestry close to an environmental reserve. The objective of the

latter was to learn about vertical integration in sustainable sugar and cacao combined with agro-forestry.

Source: Sustainable Food Lab web site http://www.sustainablefoodlab.org/

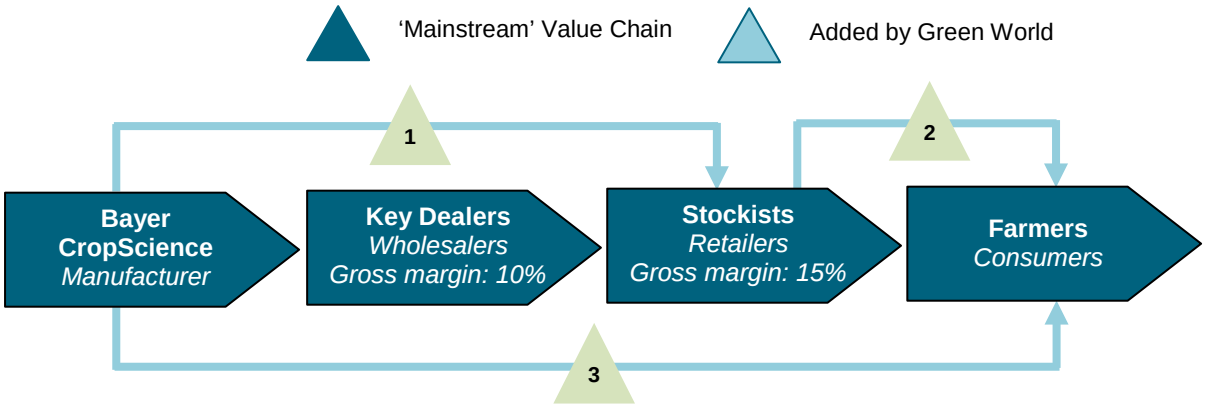
A5 Bayer Green World, Kenya

Bayer Green World, an agro-dealer franchising model, operates in Kenya and Tanzania. With GIZ support, Bayer trains agrodealers, brands them as Bayer Green World, and gives them access to extension materials. Other tools used include radio advertising, and promotion of Green World shops by government extension officers. The model operates on a 30-day rotating credit basis. Figure 2 shows the model.

Figure 2 Bayer Green World model

Bayer Green World Crop Protection Products – Main Activities

While the mainstream distribution model remains unchanged, the Green World programme creates direct links to 200 stockists and their consumers, expanding the possibilities of the channel.



1
- Stockists receive business and product/agronomics training
- 7 Bayer area representatives supervise and provide technical assistance to stockists
- SMS tool allows Bayer to contact all its stockists with important messages

2
- Green World stores become consultancy centres for local farmers
- Full range of Bayer's agricultural products available with lower rate of stock-outs (vs non-Green World shops)
- Stockists distribute Bayer's marketing materials and brochures to farmers

3
- Demonstration days attended by stockists, government extension officers and farmers
- Radio advertisements directing farmers to Green World shops
- Promotion of Green World shops by government Extension Officers and Technical Assistants

Source: Primary research in collaboration with Bayer; Monitor Analysis

Source: Adapted from Figure 3.3. in Kubzansky et al, 2011.

Bayer selects dealers on the basis of their reputations in the community and their sales volumes. Although Kenya has some 5000 agrodealers stocking Bayer products, only about 4% are enlisted as Green World dealers (Karamchandani et al., 2011). Selected dealers are however some of the top performers, with about a quarter of Bayer's horticultural retail revenues in Kenya coming from Green World stores in 2011 (ibid).

Analysts (Kubzansky et al., 2011) identified five key levers driving this business model:

- Retailer selection – existing retailers, well-regarded, turning over good volumes;
- Training and equipping participants in the chain, including store marketing, and developing relationships with government extension agents;
- Stimulating demand, including via radio advertising;
- Small pack sizes; and
- Position in the value chain.

They also noted a key consideration for donors and development agencies interested in expanding reach of such a business model:

> "Bayer limited the size of the Green World programme to 200 stockists (about 4 per cent of all agrodealers in Kenya), which accounted for at least 40 per cent of the company's sales to its "mainstream market" in 2009 (~$1.2million). From a purely financial perspective, it simply does not make sense for Bayer to expand the programme. However, this limits Green World's social impact to a relatively narrow set of stores and, ultimately, farmers. Yet the selectivity of the top 200 shops is essential to the programme's success.
>
> In contrast, a donor or government interested in increasing access to, say, agricultural inputs, will probably want to expand a similar programme well past 200 outlets to maximise coverage and reach to the poor. This sets up a tradeoff: as long as a programme remains relatively narrowly focused, it can be profitable and provide sufficient incentives for all participants on a standalone basis. But given that the model has high potential to increase reach and impact, donors and other mission-led actors will need to consider providing incentives to firms like Bayer to expand beyond their initial target list, or find ways to replicate the model without being led by the manufacturer." (Kubzansky et al., 2011).

Appendix B Impacts of agriculture, fishing and forestry on poverty, hunger, inequality and the environment

What impacts may different forms of development of agriculture, fishing and forestry have on poverty, hunger, inequality and the environment? If agriculture grows does this mean higher incomes and increased welfare for people in poor and vulnerable households? Under what conditions may they lose out?

Evidence on the impact of agricultural growth on poverty exists at the aggregate level of countries, as well as in more detailed studies carried out at district and village level that explore specific mechanisms.

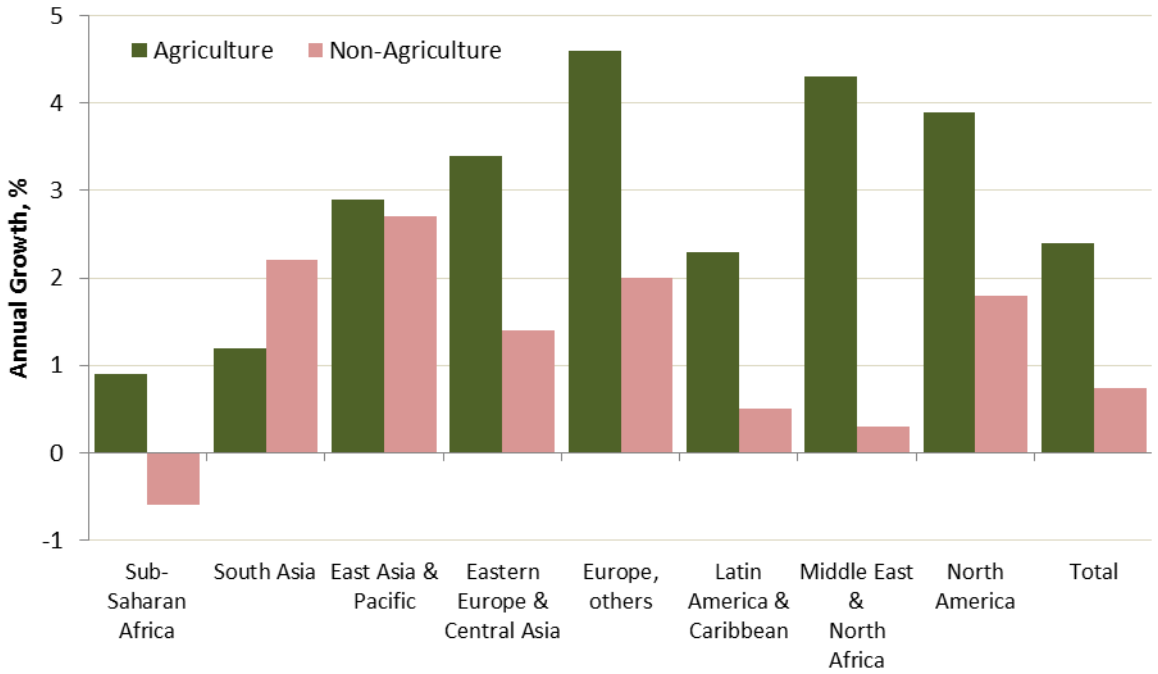
Studies in the 2000s (Irz et al. 2001; World Bank 2007 citing Bravo-Ortega and Lederman 2005, Christiaensen and Demery 2007, Hasan and Quibria 2004, Ligon and Sadoulet 2007; Christiaensen et al. 2010) indicate that increases in agricultural growth and productivity tend to reduce poverty quite strongly and that growth in this sector is more effective than that in other sectors, most notably manufacturing. The World Development Report 2008 (World Bank 2007) sets out the evidence:

> 'Among 42 developing countries over 1981–2003, one percent GDP growth originating in agriculture increased the expenditures of the three poorest deciles at least 2.5 times as much as growth originating in the rest of the economy (figure below).
>
> Similarly, Bravo-Ortega and Lederman (2005) find that an increase in overall GDP coming from agricultural labor productivity is on average 2.9 times more effective in raising the incomes of the poorest quintile in developing countries and 2.5 times more effective for countries in Latin America than an equivalent increase in GDP coming from non-agricultural labor productivity.
>
> Focusing on absolute poverty instead, and based on observations from 80 countries during 1980–2001, Christiaensen and Demery (2007) report that the comparative advantage of agriculture declined from being 2.7 times more effective in reducing $1-a-day poverty incidence in the poorest quarter of countries in their sample to 2 times more effective in the richest quarter of countries.
>
> Using cross-country regressions per region and looking at $2-a-day poverty, Hasan and Quibria (2004) find larger effects from agricultural growth on poverty reduction in Sub-Saharan Africa and South Asia, but larger poverty-reducing effects of growth originating in other sectors in East Asia and Latin America.' [Box 1.2, page 30, World Bank 2007]

Of these studies that look to identify effects at national level, a recent study by Christiaensen et al. (2010) looks at the comparative strength of agricultural growth in reducing poverty of different levels in different countries. Agricultural growth, they report, is most effective in relieving deep poverty, US$1 a day; whereas for US$2 a day poverty, non-agriculture has the edge. Agricultural growth has most effect on poverty in low income countries (LICs), especially in sub-Saharan Africa. Where inequality is high, effects are muted. The presence of extractive industry also reduces the effect on poverty. The critical point in this study is the distinction across countries: agriculture drives growth and poverty reduction in LICs; in MICs other sectors are usually more important for both growth and poverty reduction. This should not surprise, given the overwhelming importance of agriculture to both the economy and the livelihoods of poor people in LICs, an importance that declines with economic development.

In considering why agricultural growth should be so beneficial to poverty, the same authors look at agriculture's record for raising productivity of labour and total factor productivity (TFP). This matters since increased productivity allows higher returns to labour and hence

high farm incomes and wages for farm labour. The perhaps surprising[29] finding is that across most of the world over the last 50 or more years, agriculture shows rising productivity, either by labour or TFP, at rates higher than those seen in manufacturing and other sectors.



Source: constructed from statistics in Table 2, Christiaensen et al. 2010

Table 4 Growth of labour productivity, agriculture and other sectors, 1960–2003

At a more detailed level, four pathways can be distinguished from agricultural growth to incomes and welfare of poor and vulnerable rural households, thus:

- Impacts on farmers raising their production, typically from some form of intensification;
- Impacts on those they employ as permanent or seasonal labour;
- Impacts of those with jobs created in supply chains, both upstream of farms in provision of inputs and services, as well as those downstream of farms in processing, storage and distribution; and,
- Impacts on other rural households affected by multipliers within the rural economy.

A review of studies that look at these different pathways is beyond the scope of this Guide. In any case, studies at the scale that allow these paths to be shown come from district and village studies, so that while the results may be indicative of what can happen, it is hard to prove that they apply more widely. For examples of these studies, with beneficial links from agricultural growth to incomes and welfare, see Wiggins and Keats 2013a, Chapter 2.

[29] This may surprise since growth rates in agriculture are commonly much lower than those seen in manufacturing. The resolution of this apparent paradox lies in transfer of resources – labour and capital – from agriculture to industry.

Appendix C Public interventions in markets

C1: Ghana's Cocobod, a successful public marketing agency

Prior to reforms in the 1980s and early 1990s, the cocoa marketing board in Ghana was a bloated monopoly that imposed high costs on growers, added to which successive governments from independence saw it as a cash cow to support public spending. Consequently farmers saw their prices fall, exacerbated by the increasing over-valuation of the Cedi that meant that by the late 1970s, cocoa farmers were receiving next to nothing for their deliveries. Not surprisingly Ghana's cocoa industry, once the world's largest shrank to the point of collapse.

Reforms in 1983 saw the Cedi devalued heavily from Cedi 2.75 to the US dollar, to Cedi 37. Cocobod's functions were reduced as responsibility for roads in the cocoa regions was transferred to the ministry of roads. Subsidies on inputs were phased out. After the 1992 elections deeper reforms were undertaken, as private licensed buyers were allowed to buy cocoa with Cocobod taking deliveries from them. Staffing at the board fell from 100,000 in the early 1980s to just over 5000 by 2003.

Cocobod's functions were stripped back to the minimum needed to defend public interests. In effect it offers a minimum price to growers. It controls the quality of exported cocoa – Ghana's cocoa attracts a premium over other supplies. It has increasingly strived to help farmers raise productivity: the board provides free spraying of trees, encourages replanting with better stock, while it has tried more than one way to get credit to growers for more use of fertiliser and other inputs. Consequently production has notably increased in the 2000s.

Would full liberalisation of cocoa production have worked better than the reformed Cocobod? A comparison of cocoa sectors across four West African countries suggests not.
Sources: Breisinger et al. 2008, 2011; Knudsen 2007; Kolavalli and Vigneri 2011

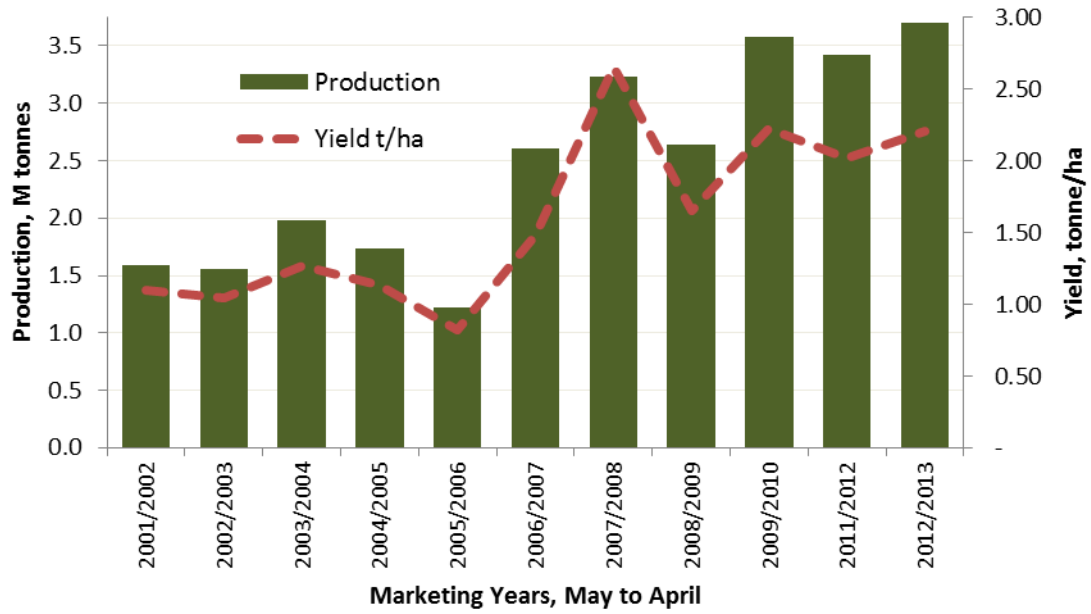
C2: Malawi's Farm Input Supply Programme(FISP)

Fertiliser subsidies in Malawi date back to the mid-1970s, but ended in the early 1990s under liberalisation. Starter packs of seed and fertiliser were introduced in 1998/99, targeted to poor farm households. Production, however, lagged behind consumption, hit by poor weather and harvests in 2001, 2002, 2004 and 2005. Alarmed, the government brought back near-universal subsidies on fertiliser in 2005/06 – much to the consternation of some donors worried by the cost.

In 2006/07 two million seed and three million fertiliser vouchers were distributed to smallholder households. The vouchers allowed recipients to buy two 50-kg bags of fertiliser at what was then 28% of full cost. In total 175,000 tonnes of fertiliser and 4,500 tonnes of improved maize seed were distributed at a cost of US$91M. By 2008/09 182,300 tonnes of fertiliser for maize were made available with vouchers planned for 1.5M households. As many as two-thirds of Malawi's smallholders may be covered by the programme.

Since subsidies were introduced, maize production has increased remarkably, see Figure 3. Within two years harvests were up by another million tonnes or more, exceeding estimated national requirements. Given, however, the high prices of maize seen in some recent years, some wonder if the statistics are accurate and suspect they may have been inflated (Jerven 2012).

Figure 3 Malawi maize production, 2001/02 to 2012/13



Source: USDA estimates, downloaded March 2014

Targeting has been imperfect with evidence that some vouchers have been distributed to government supporters. Fertiliser has been distributed mainly through a state company, marginalising private agrodealers in rural areas. Politically, parties have promised to increase the programme and its benefits as a vote winner, regardless of the economic merits of expansion.

The programme is costly, with costs rising with fertiliser prices: in 2008/09 when world fertiliser prices spiked it cost more than US$200M, 16% of the total government budget.

Measuring impacts is complicated by questions about the additional increase in fertiliser use, with estimates of 20–30% displacement of commercial sales in some years; as well as by estimation of second round effects on maize prices, rural employment and wages, when dealing with a crop central to the economy.

That said, more maize available in villages, rising rural wage rates, reduced rural poverty and better child nutrition have all been reported. Chirwa and Dorward (2013) reckon that overall the benefits outweigh the costs by 35%[30], not including any benefits from child nutrition to long-term human capital. They believe more might have been achieved had there been better targeting, more attention to complements to fertiliser that would raise yields, and better maize marketing.

Others (Jayne and Rashid 2013, for example) are more critical, wondering just what the opportunity cost of the programme has been – the FISP has dominated the budget and administrative capacity of the ministry of agriculture and surely has limited its actions. Sources: FAC 2008, 2009; Dorward and Chirwa 2011, Chirwa and Dorward 2013; Jayne and Rashid 2013; Jerven 2012; Wiggins and Brooks 2012.

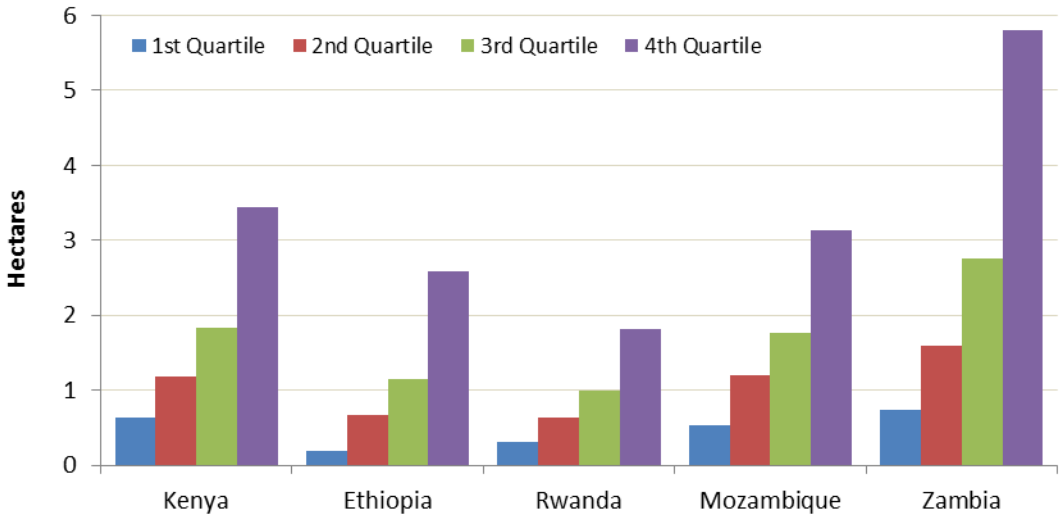
30 This may look sufficient justification, but returns to investments in agricultural research, for example, often show much greater return.

Appendix D Differences among primary producers

Differentiation between rural households can be pronounced, even after omitting large-scale farmers and others with unusual amounts of land, water or capital. Rural households have differing access to land, water, livestock, labour, capital, education and so on. Consequently within communities, households have different livelihood options, while returns to their labour will vary.

In surveys of farmers in relatively egalitarian rural societies – as applies across much of Africa or the ejidos of Mexico – access to land is often remarkably uneven. Gini coefficients – a measure of inequality on a scale from zero as perfect equality to one as extreme inequality – of land access are rarely less than 0.7: those for livestock are often higher. For example, in five countries of Eastern Africa surveys of smallholders in the late 1990s showed that generally only the top quarter of farmers have two or more hectares: often 50% or more had less than one hectare, and the bottom quarter had half a hectare or less, see Figure 4.

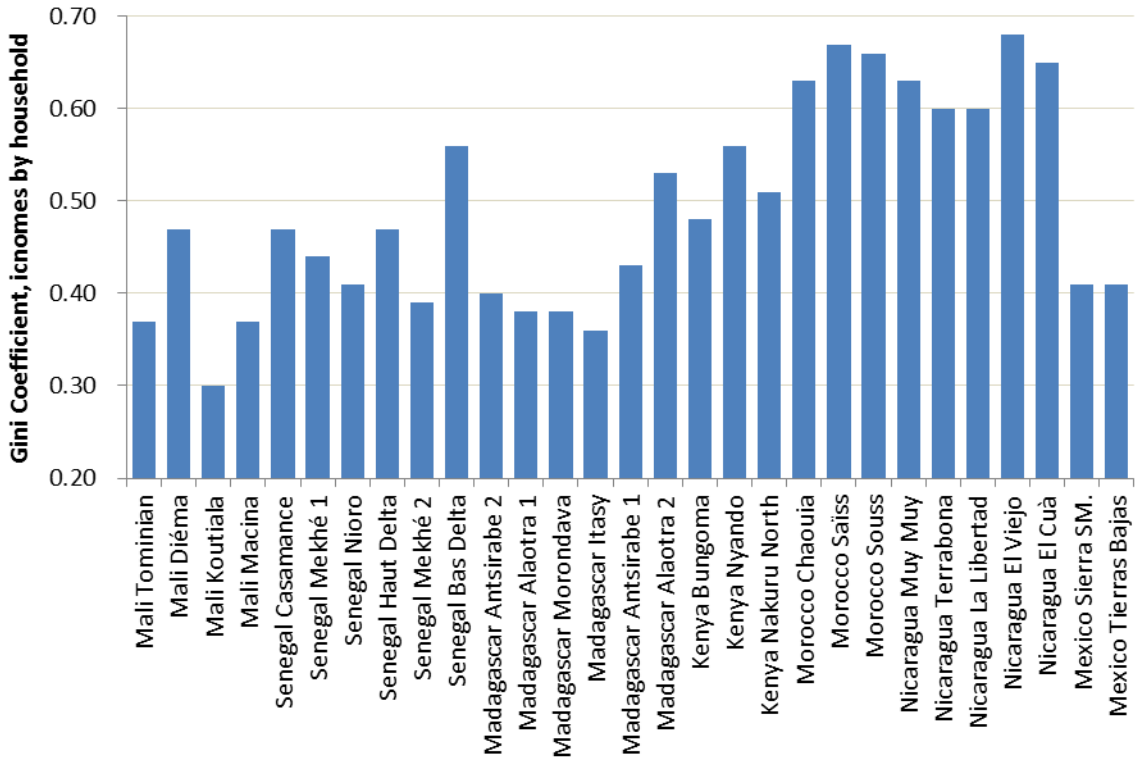
Figure 4 Land distribution among small farmers in Eastern Africa, late 1990s. Average land sizes for farmers by quartiles



Source: Constructed from data in Jayne et al. 2005 reporting results of surveys of small farmer communities in the 1990s

Income differences between rural households can be similarly high. For example, surveys of 28 regions in seven countries carried out in late 2007 and early 2008 (Losch et al. 2009) showed Gini coefficients to be in excess of 0.60 for households in Morocco and Nicaragua, above 0.40 for households in Mexico and Senegal, and only in Mali and Madagascar were there regions with coefficients below 0.35, see Figure 5.

Figure 5 Income inequality between households, selected regions of Africa and Latin America, 2007/08



Source: Compiled from Table 6, Losch et al., 2009

Awareness of these differences and their policy implications has grown during the 2000s,[31] as seen in the emergence of frameworks to typify and understand differences between rural households, see Box 7.

Box 7 Typologies of differences among rural households

OECD/DAC (2006) sees rural households as belonging to five 'rural worlds', namely: large commercial farms; smallholders who produce commercially; smaller farms mainly devoted to subsistence; landless labourers; and households barely surviving that need social assistance.

RIMISP (Berdegué and Fuentealba 2011), the Latin America network for Rural Development, divides family farms along the twin axes of household assets and the environment of the household, a combination of market access plus physical conditions. This allows them to define thee groups of households. Class A farmers have the assets, access to market and natural resources to produce more, commercialise and escape poverty. At the other end of the spectrum are households, Class C, that lack assets, access to markets and good natural resources to farm their way out of poverty: most of their income comes from off-farm labouring, migration, and transfers. In between lies another group of households, Class

[31] Rural inequality, of course, is a longstanding interest, but one that has attracted varying degrees of interest through time. In the 1970s there were intense debates over the nature of rural differences, usually set within Marxian conceptions of classes. Such debates all but disappeared in the 1990s with the demise of Marxian thinking.

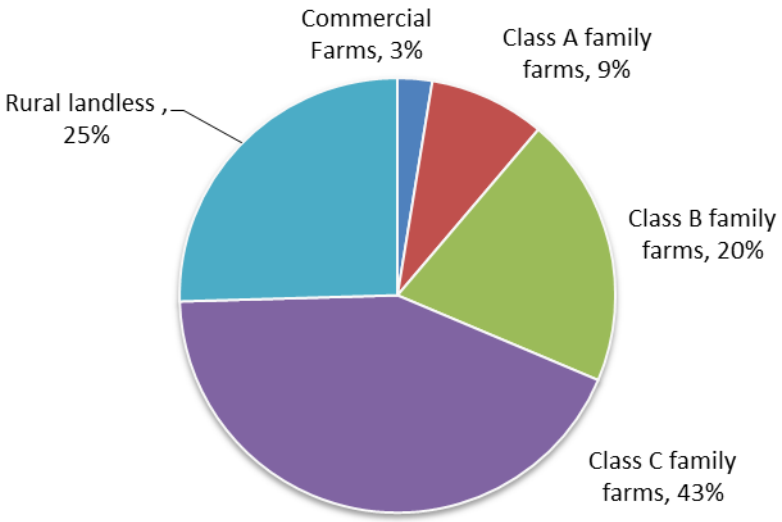
B, who currently lack the assets or conditions to work their way out of poverty, but who may with modest public assistance to overcome their limitations, do so.

The World Development Report for 2008, *Agriculture in Development,* implicitly sees rural differences when it proposes that rural households have three pathways out of poverty: agriculture, non-farm jobs, and migrating (World Bank 2007).

Dorward (2009) also focuses on livelihood options that apply to different groups of rural households. Three possibilities are proposed: intensification ('stepping up') of farming or other resource-based activities; diversification or movement into the non-farm economy – either local or through migration to urban areas ('stepping out'); and, for those in the most marginalised cases, finding ways to subsist and survive ('hanging in').

How many rural households belong to the different categories proposed? For Latin America, RIMISP (Schejtman 2008, Soto Baquero et al. 2007, cited in Berdegué and Fuentealba 2011) estimated the number of rural households that may lie in their three groups for 12 Latin American countries,[32] to which may be added households that operate large commercial farms and the landless. Figure 6 shows the resulting distribution of the nearly 19.5 million rural households living in the 12 Latin American countries in 2008.

Figure 6 Estimated distribution of rural households in 12 Latin American countries, 2008



Source: Calculated combining data from Berdegué and Fuentealba 2011 with FAOSTAT data on rural populations.

The results are striking, as are their implications for development strategy. If agricultural development in these 12 countries were to rely on large commercial farms alone, then only 3% of households will operate farms: the other 97% have to find work on those farms or off farms altogether. If the most favoured Class A smallholdings can be developed as well, then the ratio moves to 12% against 88%. This would still leave very large numbers of rural households seeking jobs on larger farms, or else looking for non-farm work. If, however, the intermediate Class B small farmers can, with appropriate policy, be included in agricultural development, then a future rural economy might see almost one-third of the households who

[32] Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guatemala, Mexico, Nicaragua, Paraguay, Peru and Uruguay.

rely primarily on natural resources for their livelihoods continue to do so, with the other two-thirds increasingly reliant on employment and business off the land.

The first two ratios of remaining farmers to those leaving are large: unless the large-scale agriculture were unusually intensive in labour, then the most likely outcome would be a mass exodus from the land – probably with considerable rural under-employment, and probably from rural areas as well. The third option looks both more feasible – all the more so since small farms are likely to be more intensive in their use of labour than large farms, owing to lower costs of supervision of labour – as well as implying a more benign transition from an agrarian to industrial economy.[33]

[33] History provides some guides here. In Europe, the UK saw agricultural development with land concentration and expulsion of many rural households from their land. Eventually the industrial revolution provided jobs for all, but there were decades in which the English countryside harboured large numbers of landless labourers living in desperate poverty. France, southern Germany and many other parts of Europe saw a broader-based agricultural development where the small family farm was developed. Through time, an increasing share of these farm households sought jobs off the farm with their farms increasingly operated by those who chose to remain as mainly full-time farmers. The process was more gradual and benign, without mass rural impoverishment.

Appendix E Circumstances of women farmers

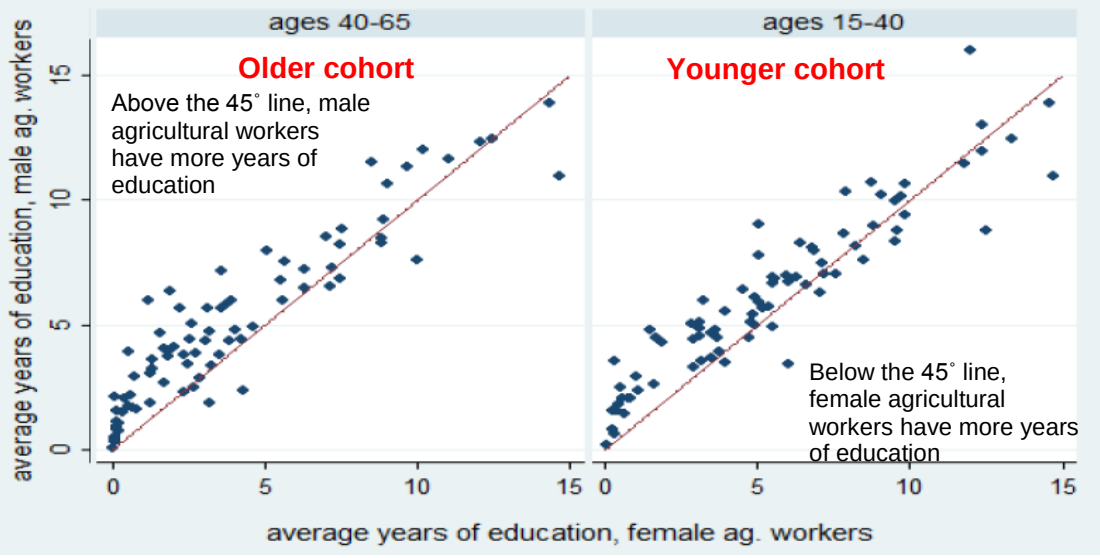
Women have less access to land, capital, and labour: this makes it difficult for them to participate in commercial farming.

Women farmers have lower access to productive resources such as good land, credit, fertiliser, irrigation or other technology including motorised transport, coupled with higher opportunity costs for their time than men. Although more than a quarter of rural households in Africa are headed by females, less than 15% of agricultural landholders are women (FAO 2011; Raney et al. 2011).[34] Furthermore, where women do hold land, it tends to be in smaller plots, with less secure rights, and of quality inferior to men's (FAO, 2011). Insecure land tenure has knock-on effects for acquiring credit: land or other fixed assets to which women have less secure rights are often needed as collateral to access credit (Raney et al., 2011). In most countries, there is a five to ten percent disparity in the proportion of female-headed households accessing credit compared to their male counterparts (FAO, 2014). Poor access to credit hampers women's ability to invest in inputs like fertiliser, irrigation, or other technology.

A further crucial imbalance arises in education and literacy. Improved education empowers farmers to navigate and enter into contracts or agreements, understand and exploit technological or business opportunities, improve self-respect, as well as negotiating more power within communities, groups, or households. Although evidence points to a levelling playing field, with gender differences shrinking and overall levels of education improving, a gap remains.

Figure 7 shows that in most cases female agricultural workers benefit from fewer years of schooling than their male counterparts. The difference is shrinking, however: in the younger cohort women are more likely to have similar education to men. Sub-Saharan Africa, however, is the one region where this gap was not shown to be closing (Croppenstedt et al. 2013).

Figure 7 Gender gap in education among agricultural workers: comparing old and young



Source: Figure 10 in Croppenstedt et al., 2013. Original source: Household survey data. Data points are countries across the globe.

[34] Though this figure masks wide regional variations from about only 5% in Mali to around 30% in Malawi.

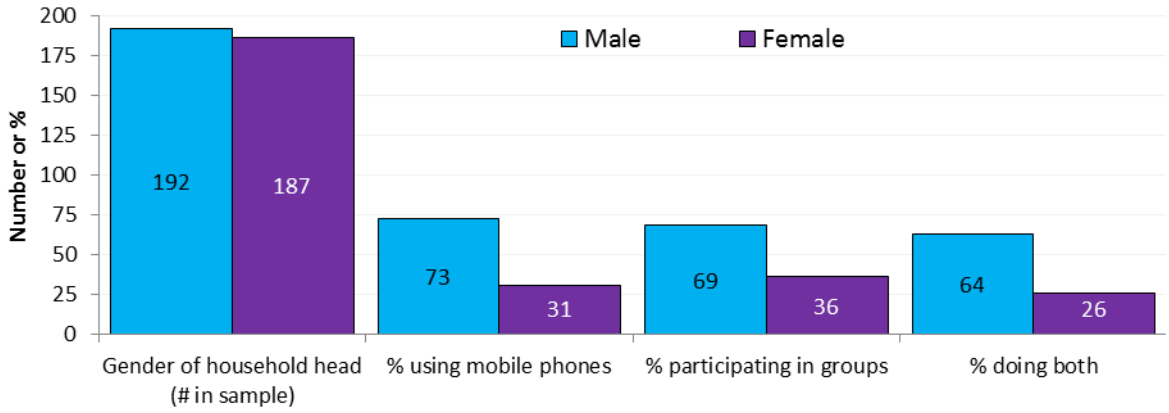
Women may lose access to resources as men commercialise and co-opt resources.

In African agriculture generally, women's control extends mostly to income generated from semi-subsistence crops, while men tend to control cash crops – the domain under which most new commercial opportunities fall (Fischer and Qaim 2012). Increasing commercialisation may see men capitalise at the expense of women who provide the lions' share of agricultural labour.

In Zanzibar, for example, though the farming of spices has traditionally been in the female domain, men are taking over despite women providing the labour (Croppenstedt et al. 2013). In Malawi, increased profitability of hybrid maize grown by men has seen much less land devoted to groundnuts, a women's cash crop (ibid.).

Small-scale farmers often need to group together to commercialise: women, however, are often excluded or under-represented in farmer groups, particularly from group governance. In Kenya, for instance, women were typically half as likely to participate in farmer groups, or use a mobile phone – both significant factors influencing commercialisation – compared to male farmers, see Figure 8 (Kirui and Njiraini 2013).

Figure 8 Participation in groups and mobile phone use differences by gender for smallholder farmers in three provinces of Kenya, 2010



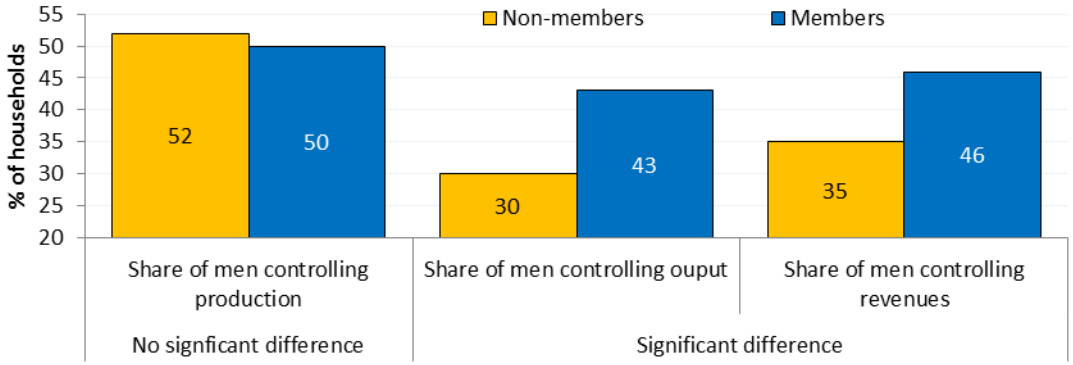
Source: Data from Table 1 in Kirui and Njiraini, 2013

Formation of groups can actually reduce women's agency. In another study from Kenya, of small-scale banana producers[35], men held a significantly higher control over output and revenues than women in farming households that were members of groups compared to households which were not members (Fischer and Qaim, 2012), see Figure 9.[36]

35 In Kenya, banana has typically been a semi-subsistence food produced under low-input regimes, but since 2003, Africa Harvest and TechnoServe have been working together to encourage banana farmers to establish self-sustaining groups – to help access better planting material, technical extension, and output markets. Several thousand small-scale banana growers in Kenya's central highlands have organised into such groups (Fischer and Qaim, 2012).

36 Though it is also possible that causality may run the other way, another test of Fischer and Qaim (2012) supported their original hypothesis that farmer groups contribute to male control over banana production and revenues. They checked to see how male control changed through time with groups of different ages, and found that in groups, as time passes, men gain increasing control – which was not the trend in non-member households.

Figure 9 Male control over banana activities in central Kenya with household membership in farmer groups



Source: Table 2 in Fischer and Qaim 2012.

Women get less access to market opportunities, because men are usually signed up to contracts and traders are less likely to deal with women. Women tend to have fewer links to extension services, traders or middlemen. For example, in 97 countries, female farmers were found to receive only 5% of agricultural extension services, while only 15% of extension agents are women (FAO, 2014). In spite of improvements in some areas, women participate less in new opportunities arising in agricultural commercialisation, particularly for non-traditional export crops. Croppenstedt et al. (2013) highlight cases of women being under-represented or edged out by increasing male involvement, see Table 5.

Situation	Example
Contracts tend to be signed with men. Companies prefer to sign contracts with men because of women's limited access to productive resources. Women lack statutory rights over land and have less authority over the family.	Meru, Kenya: over 90% of export contracts were issued to male household members
	Malawi: smallholder sugar authority scheme, only one participant was a woman
	Kenya Tea Development Agency issues tea licenses to male household heads
	Senegal: one out of 59 farmers of French beans for export is a woman. For French bean cultivation, women lack claims to crucial irrigation water and infrastructure in that region of Senegal. Women's weaker rights over land, labour, and other resources lead exporting companies to sign contracts with men
	Dominican Republic: fruit and vegetable sector contracts are signed with married men. Processing firm managers typically refuse to sign contracts with single men; women provide the labour
	Central Highlands of Guatemala: 3% of contracts for snow peas and broccoli (key export crops in the Central Highlands) are held by women
	South Africa, 70% of sugar contracts are held by men, but 60–70% of the principal farmers are women
	Northern Nigeria: in a barley out-grower scheme, irrigated farming is less feasible for women owing to the cost of pumps and the high labour requirements. Land is also a factor
	China: a large contract farming scheme, women perform the bulk of the work but are excluded from signing contracts

Table 5 Men favoured in commercial farming schemes

Source: Croppenstedt et al. (2013). Original sources: Dolan, 2001; Nankumba and Kalua, 1989; von Bulow and Sørensen, 1993; Maertens and Swinnen, 2009; Raynolds, 2002; Katz, 1995; Porter and Philips-Howard, 1997; Eaton and Shepherd, 2001

Demands of commercial farming have harmful side-effects, such as when women work so long that they cannot take care of infants.

There are further risks if women's time is subsumed into new activities at the expense of old: children may leave school to participate in the labour market or to replace their mother's household maintenance or childcare activities (ALINe, 2011).

Women benefit directly or indirectly from higher incomes resulting from either their own commercial crops, or those of the household.

Though women form the minority of producers in many of the more commercial schemes linking small-scale farmers to markets, it does not necessarily follow that women do not benefit. To the extent that they live in households with increased incomes from better market linkages, they may well benefit. Much depends in these cases on how equitably incomes are shared within the household (Wiggins and Keats, 2013a).

Women's indirect benefits come most notably in the form of jobs. Two examples from Senegal are illustrative: in the Niayes area of Senegal, wages earned from the French bean export industry make up one-third of income for households involved, with 85% of these wages earned by women (Maertens and Swinnen 2009); while in the Senegal River Delta, some 45% of income generated in the tomato industry is earned by women. While such jobs are often unskilled and poorly paid, there are exceptions – the Nununa Federation of shea nut producers in Burkina Faso is an example, where some women have been trained to take on skilled jobs in processing (see Case 18 in Wiggins and Keats, 2013a).