



Department
for International
Development



DFID's Conceptual Framework on Agriculture



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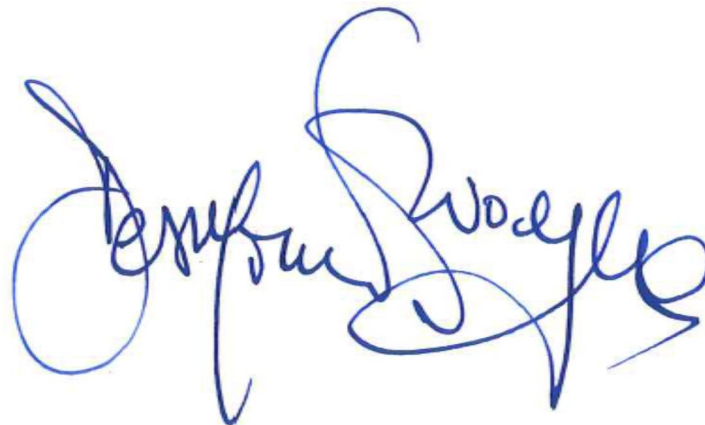
Foreword

Agriculture is an important sector for many developing countries, both to drive economic development but also to support poverty reduction and boost food and nutrition security. DFID has not updated its thinking about agriculture since 2005, but the world has changed immensely. We have achieved significant successes in reducing poverty and hunger, and have boosted the incomes and livelihoods of many people, including in the poorest countries.

At the same time, new challenges and opportunities have presented themselves. For example, how will we ensure the food security of a rapidly growing global population in an era of climate change and increasing shocks and disasters? How to make agriculture more productive and food systems more sustainable and resilient? How to better benefit girls and women who make up the majority of people working in agriculture in developing countries, but who are not currently getting enough from their labours? How to adopt a new approach to agriculture in a context where more and more people migrate to towns and cities, and where plot sizes and climatic conditions make it less and less likely that future generations will be able to feed themselves and their families with their own agricultural production?

We have looked at the evidence and come to the conclusion that what is needed is a more differentiated approach to the way in which we support agriculture. There are farmers who are already sustainably linked into markets and who are able to access commercial loans for their farming businesses. There is also a “missing middle”, which in many developing countries is a very large group of farmers who may need just a bit more support to become sustainably linked to markets and increase their incomes, be it through rural infrastructure, extension work, small grants for them to afford high quality inputs, support to aggregate production, or to become otherwise linked into markets. There is also a group of farmers and their families who may require support to diversify strategically or may wish to move out of agriculture altogether.

We have considered the evidence on all of these cases and have produced the present conceptual framework which will guide our forthcoming policy and programme choices. Our new strategic approach will take a more differentiated approach to what we do, with whom, and where we provide this tailored kind of support. This will help better unlock the potential of agriculture to drive inclusive growth, reduce poverty and build sustainable food systems, while making a substantial contribution to achieving the Global Goals.



Rt Hon Desmond Swayne TD MP
Minister of State for International Development

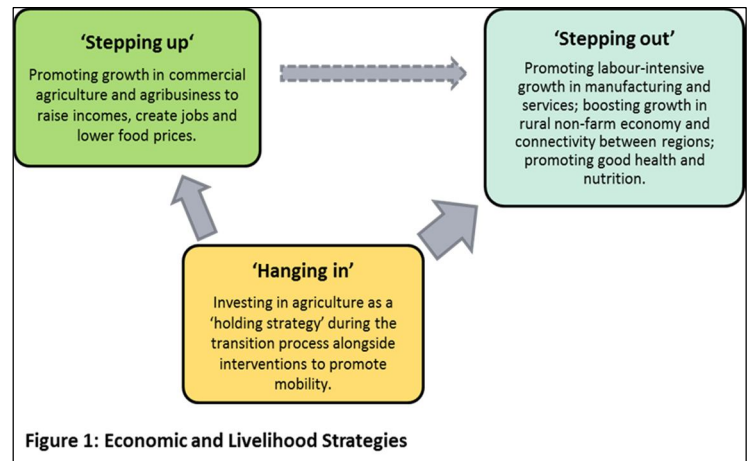
Executive Summary

This paper sets out a conceptual framework to guide DFID's future approach to agriculture and the agrifood sector. Its focus is on the role agriculture and agroindustry can and need to play in supporting inclusive economic growth and poverty reduction, food and nutrition security, and environmentally sustainable food production.

Some of the key opportunities, challenges and risks faced by the agrifood sector (encompassing agriculture and agroindustry) and considered in this policy framework include: that poverty will remain a predominantly rural phenomenon for the foreseeable future; persistent, high levels of food insecurity and malnutrition despite increased global food production per capita; the projected rise in food demand over the coming decades in the context of climate change and resource scarcity and increasing pressure on global supply.

DFID's long-term perspective on agriculture is based on the assumption that **sustained wealth creation and a self-financed exit from poverty depend, in the long-term, on economic transformation and the majority of the rural poor finding productive and better paid employment outside of primary agricultural production. Despite the need for this transition, agricultural growth and downstream processing and productivity growth are likely to be important, if not essential, as a continued source, if not driver, of growth.** Agriculture sector growth, where it can be achieved cost-effectively, is likely to have a bigger impact on poverty reduction than growth in other sectors as it offers the most direct route of raising returns to poor people's main assets, land and labour. A key challenge is to find the right balance between investments and interventions that create long-term pathways out of poverty, whether in the agrifood sector or in other manufacturing and services, and those that enable the rural poor to make better use of existing assets and livelihood strategies in agriculture and the informal sector, until sufficient productive off-farm jobs can be created. This calls for a twin strategy, on the one hand, promoting **agricultural transformation** ('stepping up' in Figure 1) focused on commercialisation and agroindustry development, to create jobs and raise incomes and, on the other, facilitating a long-term **rural transition** from subsistence agriculture to off-farm job opportunities as these emerge (from 'hanging in' to 'stepping out').

Promoting agricultural transformation and rural transitions therefore requires a dynamic and context-specific approach to agriculture, with agriculture programmes and policy integrated into economic development strategies. It is also important to be clear how the intervention in the agrifood sector will contribute, directly or indirectly, to poverty reduction, food and nutrition security, and sustainable food systems. Efforts to promote agricultural transformation and rural transitions also need take account of the degree of small-scale farm differentiation and the opportunities or constraints this creates for agriculture as a pathway out of poverty.



Successful agricultural transformation depends on a strong enabling environment being in place. Broad-based agricultural transformations that leave no one behind require public interventions to address coordination and market failures in addition to investing in public goods, in particular rural roads and infrastructure, agriculture research, and creating an enabling policy environment and investment climate. Agriculture and agribusiness are predominantly a private sector activity. Investment which results in a positive impact on poor people's incomes and a country's economic growth is dependent on the capacity and incentives of a broad range of actors. Technology and innovation are equally important not least as a key driver of productivity growth and value addition.

Promoting agricultural transformation will require a specific focus on market and value chain development that will help smallholder farmers to become sustainably profitable and respond effectively to market demand. Interventions to promote inclusive agricultural transformation need to consider (a) the scale of farms and agribusinesses development that will deliver both growth and poverty reduction; (b) the institutional arrangements that will enable the largest number of smallholder farmers and workers to participate in and benefit from commercialisation; (c) the value chains or related agribusiness investments that will benefit the largest number of poor people in the long-run, as producers, workers or consumers; and, (d) the main risks from prospective agribusiness investments that need to be prevented or mitigated.

Farm production is unlikely to provide a rapid pathway out of poverty for the majority of the rural poor, and most will continue to depend heavily on own-account farming for food security and as an importance source of cash income for the foreseeable future, until economic opportunity outside agriculture increases. **To facilitate this**, governments need to adopt a dynamic approach to subsistence agriculture, which builds the resilience of smallholders and raises returns to existing farm assets, but at the same time integrates such programmes with other interventions to promote growth, jobs and increased incomes in the rural non-farm economy. Facilitating greater mobility between sectors and rural and urban areas to optimise access to better opportunities for poor people will be essential.

Interventions and investments in the sector also need to consider three important **cross-cutting** priorities:

- **Inclusion and women's economic empowerment:** For agricultural transformation to be inclusive they need to create equal opportunities for women and men and ensure marginalised groups and hinterland zones do not get left behind.
- **Production of nutritious and safe food:** Policy and programmes to promote agricultural transformation should seek to increase food security and nutritional benefits. At the very least, the agrifood sector must avoid a direct negative impact on health outcomes.
- **Environmental sustainability and climate smart agriculture:** Climate change, rising and changing food demand and natural resource scarcity present significant challenges and require difficult trade-offs between raising productivity to promote growth and poverty reduction, building resilience to climate risks, and reducing agriculture's impact on the environment.

The amount DFID invested in the agriculture sector increased significantly between 2007 and 2012, rising from £262 million in 2007/08 to £632 million in 2011/12. It has since then plateaued. Adding humanitarian food security and nutrition activities, DFID spent a total £640 million in 2013 (USD1 billion). During this period around 60% of that was channelled through multilateral organisations to their agriculture portfolios. Around two thirds of the direct DFID bilateral in-country investment had a significant focus on **building resilience and promoting food security** of the poorest rural households i.e. interventions focusing on agriculture as a 'holding strategy' to improve the livelihoods of those without access to alternative economic opportunity. Around a quarter of DFID's direct country spending was focused primarily on **market development and promoting pathways to commercially viable agriculture**.

Background

This paper sets out a conceptual framework to guide DFID's future approach to agriculture and the agrifood sector. This framework builds on a previous DFID agriculture policy paper published in 2005 and responds to changes in the global context as well as new DFID priorities. Two recent DFID evidence papers on the relationship between agriculture and growth and agriculture and nutrition provide an important evidence base for this paper¹.

This framework considers the whole agrifood sector, including primary agricultural production on the farm, agroindustry, agribusiness², supply chains connecting farmers to consumers, as well as associated service providers. This approach is grounded in the recognition that agricultural production depends on and is driven by demand from buyers, processors and ultimately consumers along the supply chain, and that agroindustry plays a critical role in value addition, job creation and in shaping diets. Based on this perspective, the paper considers how the agrifood sector affects people as producers, workers and consumers. Within this framework, agriculture includes crops (food and non-food), livestock and fisheries.

This conceptual framework focuses on the contribution of the agrifood sector to achieving three interconnected goals:

- **Economic growth and poverty reduction:** what role does agricultural development need to play in promoting economic growth as a basis for rural poverty reduction and how can the agrifood sector best contribute to jobs and higher incomes for the rural poor?
- **Food security and improved nutrition:** what role can agricultural and agroindustry development play in ensuring rural and urban populations in developing countries have reliable access to sufficient, nutritious and safe food?
- **Sustainable food systems:** how should agriculture and agroindustry be developed to ensure current production systems do not compromise future production and future supply is resilient in the face of climate change and resource scarcity?

Two basic assumptions underlying this framework are (a) that few, if any, DFID focus countries will be able to make substantial progress on broad-based poverty reduction and growth without agriculture playing its part, and (b) that while the agrifood sector growth is important and in most cases necessary for poverty reduction and economic development, this will depend in the long run on rapid growth and job creation in other sectors.

This paper is divided into three parts:

1. **Context–Key Challenges, Opportunities and Risks.** This part summarises some of the key trends and problems that need to be considered in DFID's approach to agriculture.
2. **DFID's Long-Term Perspective for Agriculture.** This section sets out an overarching vision for how DFID should approach agriculture, set within the context of the structural transformation of the economy.
3. **DFID's future approach to promote agricultural transformation and rural transitions.**

Acronyms

CFS	Committee on World Food Security
CGIAR	Consultative Group on International Agriculture Research
DFID	Department for International Development
FAO	Food and Agriculture Organisation
OECD	Organisation for Economic Co-operation and Development
FDI	Foreign Direct Investment
GVA	Gross Value Added
GDP	Gross Domestic Product
IFAD	International Fund for Agricultural Development
LIC	Low Income Country
MIC	Middle Income Country
M4P	Market For the Poor
ODI	Overseas Development Institute
SME	Small and Medium Enterprise
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organisation
VGGT	Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security
WB	World Bank
WHO	World Health Organisation
WTO	World Trade Organisation
WFP	World Food Programme

1. The context: key opportunities, challenges and risks

The following is a summary of the most important opportunities, challenges and risks (not in order of importance) and associated trends that DFID's future approach to agriculture needs to respond to. These challenges have been set out extensively in many recent analytical reports, including the Government's Foresight Report of Food and Farming (2011)³, and are therefore not set out in detail in this paper.

- Poverty is still predominantly a rural phenomenon and will remain so for at least the next two decades⁴. Over 70% percent of the poor reside in rural area but rural populations make up 58% of the developing world. More than three quarters of those living in extreme poverty are in rural areas and nearly two thirds of the extremely poor earn a living from agriculture⁵. While poor rural people's livelihoods are typically highly diversified, agriculture continues to provide a critical source of food and income for the majority of the rural poor. IFAD estimate there are around 500 million smallholder farms in developing countries, supporting almost 2 billion people.
- World agriculture produces 17% more calories per person today than it did 30 years ago, despite a 70% population increase⁶, but an estimated 793 million people are estimated to be chronically undernourished.⁷ Only 58 out of 118 countries will achieve the MDG1 hunger target.
- An estimated one billion people do not get enough vitamins and minerals in their diet, which has an impact on long-term health, physical and cognitive development. 165 million children under the age of five are chronically undernourished (stunted) because of long-term exposure to a poor diet and repeated infections⁸. The number of overweight or obese adults in developing countries has more than tripled between 1980 and 2008 and in 2008 there were more affected people in developing countries than in rich countries⁹.
- A significant gender gap in agriculture means women have unequal access to and control over productive assets and income despite contributing a significant share of agricultural labour¹⁰.
- Population growth, rising middle classes and changing diets are projected to increase the overall demand for agricultural products (including food, feed, fibre and biofuels) by 1.1% per year from 2005 to 2050, a fall in demand growth compared to the past four decades but still substantial given average rate of productivity increases in crop production has slowed and falls below rates of population growth in many developing countries.
- Increasing agricultural intensification in response to demand growth increases the risks to food safety, for example linked to pesticide use or zoonoses (infectious animal diseases which can be transmitted to humans). Agrifood sector transformations are also associated with a dietary transition leading to increasingly unhealthy diets and obesity.
- Growing urbanisation and changes in food value chains driven by supermarkets and large food companies are transforming food markets around the world, creating both opportunities and challenges for small-scale farmers. Up to two thirds of the food economy in Asia is already estimated to be urban while, in Africa, urban food markets are expected to grow fourfold by 2030, exceeding US\$ 400 billion in value.
- Progressive market liberalisation over the last two decades has created significant space for private sector investment in agriculture in most developing countries, although weak infrastructure, *ad hoc* market interventions by governments, and weak trust and coordination between the public and private sector result in underinvestment, thin markets and market failures. Weak land governance and

transparency also increases the risks from private sector investment, particularly around land transactions.



Farmer in a greenhouse, supported by the DFID funded Comprehensive Agriculture and Rural Development Facility (CARD-F) in Helmand Province, Afghanistan. CARD-F aims to increase legal rural employment and income opportunities through more efficient agricultural value chains and markets. ©DFID/CARD-F

- While agricultural output per capita has increased steadily in most of the developing world over the last five decades, in sub-Saharan per capita output has been stagnant or even declined during this period¹¹. An important proximate reason for this is the very low use of fertiliser and improved seed.
- Climate change and the resulting increase in extreme weather events are predicted to reduce global harvests by 7% by 2050, and in some parts of the world by as much as 20% by 2030¹². Competition for land, water and energy will intensify, while climate change and resource scarcity will make it increasingly difficult to produce more using less land and inputs.
- Rising demand and growing challenges raising supply are likely to create upward pressure on food prices, creating market opportunities in commercial agriculture but hurting poor urban and rural net food buyers (although rural food buyers may, in some contexts, be compensated by higher wages)¹³. Global supply shocks are likely to increase global food price volatility as supply struggles to keep up with demand, slowing down economic growth and transitions out of agriculture.

2. DFID's long-term perspective on agriculture

Sustained wealth creation and a self-financed exit from poverty depend, in the long term, on economic transformation and the majority of the rural poor finding productive and better paid employment outside of primary agricultural production.

- Economic transformation involves significant growth and job creation in manufacturing and services, i.e. in higher value-added sectors with long-term growth potential. This structural transformation implies a diminishing macro-economic role for the primary agricultural sector over time, relative to other sectors. Agriculture's share of GDP and labour force will fall, as growth in other sectors accelerates and a growing share of the rural population find jobs outside agriculture¹⁴. Almost all countries that have achieved sustained growth and a sustained rise in incomes over the last century have experienced the same pattern (see Annex 1: Graph 1 and 2). However, as discussed below, while primary agriculture's economic role diminishes, it will continue to play an important and changing role in the medium term, within a dynamic and growing agrifood sector.
- At the macro-economic level, successful structural transformation of an economy depends on sustained, labour-intensive growth in manufacturing and services (including the agrifood sector) *pulling* labour out of subsistence and low-productivity primary agriculture¹⁵, while rising labour productivity in agriculture drives down food costs relative to wages and 'releases' labour out of agriculture.
- At the micro-level, for many small-scale farms with commercial potential, agriculture can provide an important source of wealth creation and a pathway out of poverty¹⁶. However, for most of the rural population currently reliant on low-productivity agriculture it will mean a gradual reduction in time invested in farming (from full to part-time/weekend and/or from all to just a few family members) and a growing reliance on earnings from off and non-farm income sources, sometimes involving migration to towns and cities. It is these that are most likely to offer a pathway out of poverty. In some areas, this process is already underway but it could be strengthened and made more beneficial for transitioning households, in particular women.
- Over time, transition will lead to a gradual consolidation of land holdings and, eventually, to an increase in average farm size.¹⁷ However, ownership may remain dispersed through leasing of land and relatively small-scale, commercial family farm holdings may still dominate production as has been the case, for example, in some parts of Europe, China, Vietnam and Thailand¹⁸.

Despite the need for this transition away from a reliance on primary agricultural production, agricultural growth and downstream processing and productivity growth will remain an important source, if not a driver, of growth.

- While the share of primary agricultural production in total GDP declines with economic transformation, agroindustry's share will tend to increase and make an important contribution to overall manufacturing value added and job creation¹⁹, at the same time driving demand for farm products. For example, while primary agricultural production only accounts for 0.7% and 1.7% of UK Gross Value Added (GVA) and employment, respectively, the agrifood sector, including agro-industry, accounts for 7.3% of GVA and 14% of employment²⁰. In sub-Saharan Africa, agriculture and agroindustry are projected to grow into \$ 1 trillion industry by 2030 compared to \$ 313 billion in 2010²¹.
- In many lower income countries (LICs)ICs, agroindustry is likely to represent one of the best, if not the only option for manufacturing development. Agroindustry is a relatively labour-intensive, low-tech industry, requiring limited R&D spend and only basic skills and with competition based largely on price that gives LICs with low labour costs a competitive advantage²². While agroindustry development ensures sustained demand for farm production, its growth may also be constrained by low productivity

in agriculture, and a lack of ability to aggregate produce to meet demand. This requires parallel public and private investment to boost farm production and support supply with effective systems²³.

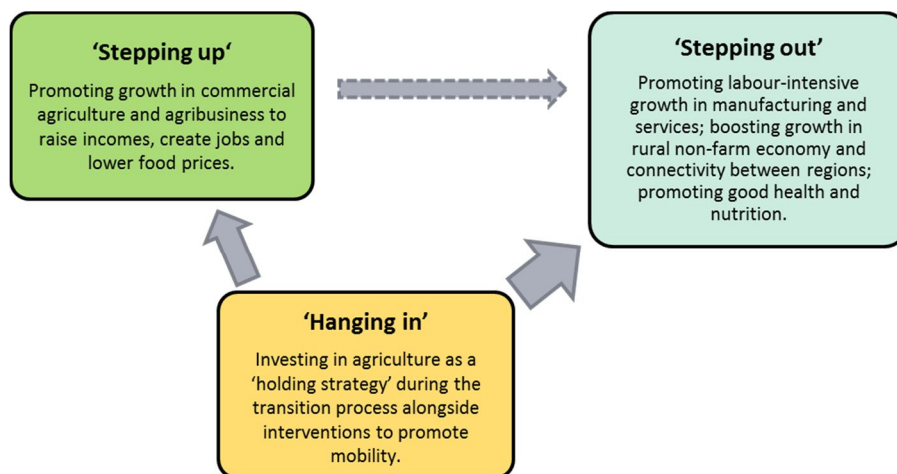
- Agriculture and agro-industry's contribution to wider growth is likely to depend on a number of factors within a country, in particular the stage of economic development, geography and resource endowment, and the pattern of agricultural investment and growth²⁴. Agriculture can play one or more of the following roles depending on these factors²⁵:
 - a) **Principle Growth Driver**: in low-income and in particular in landlocked countries and more remote regions of coastal countries *without* minerals, agriculture and agroindustry will often need to play a key role driving growth even though the challenges to raising productivity will often be significant;
 - b) **Secondary Growth Supporter**: in coastal countries with good prospects for and nascent manufacturing sector growth, agriculture and agroindustry can support wider growth by driving demand for inputs and services from other sectors, generating a trade surplus to fund investment in other sectors or keeping food prices down;
 - c) **Growth Spreader**: growth originating in the extractives sector or concentrated in specific geographical areas can be spread more broadly across the population by reinvesting revenues in the agricultural sector to promote rural growth, resilience and as a 'holding strategy' supporting rural livelihoods and food security until growth in other sectors takes off and creates a job pull out of agriculture²⁶.
- Agriculture's role will vary significantly across sub-national regions based on agro-ecological potential, population density and distance to markets. This points to the need for 'spatial' analysis to assess different sub-regions and develop differentiated strategies (see discussion of geographical zones on page 14, below).

In many DFID focus countries, agriculture sector growth is likely to have a bigger impact on poverty reduction than growth in other sectors. This is because agricultural sector growth, where it can be achieved cost-effectively, offers the most direct route of raising returns to poor people's main assets, land and labour.

- The extent to which agricultural growth impacts on poverty will depend on local circumstances and opportunities²⁷. The correlation between agricultural productivity growth and poverty reduction is strongest amongst the poorest and in resource-poor low-income countries. The cost of raising productivity will also depend on context: in some regions, and for some segments of the farming population, the cost of raising productivity may be very high and developing opportunities outside of agriculture may represent a more viable long-term strategy.
- Poor people spend much of their income on food and a significant proportion of poor farmers are net food consumers, i.e. they buy more food than they sell²⁸. Hunger and food insecurity is as much, if not more, a problem of food access and distribution as it is of food availability. As the world becomes increasingly urbanised the ability to buy rather than grow enough affordable and nutritious food will become even more dominant as the determinant of food security. Productivity growth in food crops can lower food prices relative to incomes, improving poor people's food security and allowing for an increase in demand for non-farm goods and services. This process may be critical to unlocking wider economic growth in relatively closed economies without other growth drivers²⁹.
- For more accessible countries, food imports may provide a cheaper option to ensure food availability at affordable prices, compared to investment in domestic production. However, significant food price differentials between coastal cities and rural areas may provide a case for continued investment in domestic production in some areas at least in the medium term. In many cases, investment in food production in high potential areas ('dynamic' or 'intermediate' zones discussed below) may provide a cheaper source of food than international markets, promote national and regional food trade and food security, and free up foreign exchange for investment in other growth sectors.
- Stable food markets, with falling prices relative to wages are likely to be an important condition for rural economic transformation as it provides the security rural households need to divert labour and/or

land from subsistence food production to higher value crops or more remunerative income opportunities.

Figure 1: Economic and livelihood strategies³⁰



Promoting agricultural development in the context of a broad economic transformation strategy requires a long-term perspective and careful management and sequencing of investments and interventions. Finding the right balance between investments and interventions that create long-term pathways out of poverty (whether in the agrifood sector or in other sectors) is critical, recognising varying potential for growth and opportunities for the rural poor in each of these).

- The transition between agriculture and other sectors and between rural and urban areas is likely to be a prolonged, non-linear and disorganised process, as households and individuals within households transition from full-time to part-time farming, and from self-employed activities to formal jobs.
- Depending on the pattern of growth, the transition will create different opportunities and challenges which may lead to an intergenerational and gender-based divide, with an increasingly elderly and/or female farming population left behind and predominantly young men migrating to urban centres for paid jobs.
- In OECD countries, it took around a century for agriculture’s share of GDP to fall from 40% to 7% while in middle income countries this same process has taken less than 30 years. In many LICs and fragile states this process is likely to take many decades and will be more difficult to achieve.
- The challenge for governments and DFID programmes and policy is how to help facilitate this rural transition to minimise or mitigate the potential mismatch between the release of labour from the land and the availability of productive non-farm jobs. A good understanding is needed of the characteristics of different categories of the rural poor (see Part 3) and understanding the push or pull factors driving rural-urban migration. The following three complementary approaches (set out in Figure 1 above) provide a simple framework to structure and prioritise different investments³¹:
 - **Promoting job creation in manufacturing and services and mobility...or ‘stepping out’**: Long-term investment in labour-intensive growth in manufacturing and services including in the rural non-farm economy as well as intervention to improve poor people’s ability to access these jobs through better roads, skills and improved health and transfers.
 - **Promoting agricultural transformation...or ‘stepping up’**: Promoting agricultural commercialisation and agroindustry development in order to raise farm incomes, create jobs and lower relative food prices. This will mean prioritising business models, sub-sectors and

farming segments that have strong growth potential and are labour-intensive, with low barriers to entry for farms with commercial potential.

- **Supporting agriculture as a holding strategy during the transition....or 'hanging in':** In most DFID focus countries, millions of households will continue to depend on subsistence agriculture for food security and as vital safety net for many years, until growth in other sectors create sufficient accessible job opportunities. Appropriate and continued investment in subsistence agriculture to enable poor households to make the most of existing assets alongside other interventions to support their mobility and build human capacity will be important, even if farming and pastoralism in these contexts (see page 16 below) is unlikely to provide a rapid pathway out of poverty for the majority.

Conclusion - key implications for DFID programmes and policy:

- Investment in agriculture will remain important in most DFID priority countries, although the scale and purpose of this investment will vary with economic development and for different categories of farms and regions.
- While agriculture may not be the main growth driver in many DFID focus countries, agriculture and agroindustry growth and development is likely to play a critical role in both economic development and poverty reduction in most countries.
- Decisions to prioritise agriculture and identify intervention priorities should be based on a careful diagnostic of agriculture's potential role in and contribution to growth and poverty reduction in specific countries and geographical areas (see Annex 3).
- Investing in agriculture as a 'holding strategy' for the rural poor during the transition process will remain important due to the timeframe required to create productive and accessible jobs in other sectors.
- Agriculture cannot be treated as a stand-alone sector, and agricultural policy and investments need to be aligned with industrial policy.
- Spatial and sector transitions take decades and need to be facilitated and 'managed', drawing on careful analysis of the drivers of migration and opportunities created for different segments of the population over time and what this means for our goal to eradicate extreme poverty by 2030.

3. DFID's future approach to promote agricultural transformation and support rural transition to benefit the poor

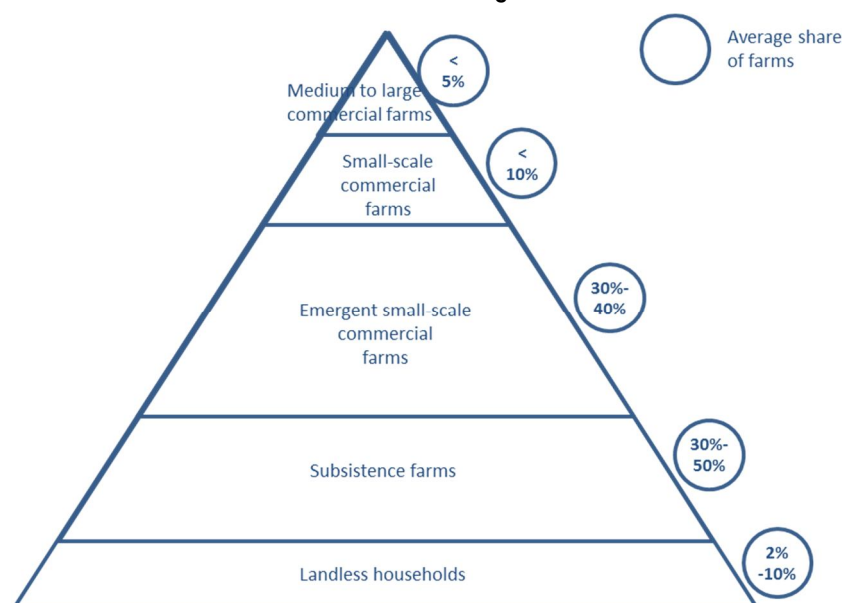
Introduction

Part 3 sets out how, where and when DFID should invest and intervene in the agriculture/agrifood sector to support one or more of the complementary approaches identified in Part 2, and do so in a way that contributes to the three goals set out in the introduction (poverty reduction, food and nutrition security, and sustainable food systems). There are many possible intervention levels and entry points, including macro-level investment in infrastructure and the enabling environment, meso-level interventions in specific value chains and markets, or micro-level transfers or provision of services to farms and communities. Whatever the level of intervention or entry point, DFID programmes and policy should be:

- (a) grounded in the *dynamic perspective* on agriculture set out above (i.e. how does this programme supports either stepping up or a longer term transition from hanging in to stepping out); and
- (b) clear on how the specific approach and instrument adopted by a particular programme will *benefit the poor*, directly or indirectly, i.e. based on an evidence-based, realistic and politically savvy theory of change which clearly tracks how the intervention impacts on the livelihoods of the poor.

Decisions on how, when and where to invest in agriculture and/or agroindustry should be based on a careful diagnostic of the opportunities in agriculture and the costs of achieving different outcomes compared to interventions in other sectors (see diagnostic framework in Annex 2). Critical to this analysis, is a well-evidenced understanding at country level of the current role and future potential of agriculture or other activities in the livelihoods of the rural poor, taking into account the political economy, geographical diversity, current farm presence/set-up and land holdings. The available evidence points to a very skewed distribution of land holdings, a relatively small fraction of small-scale farms accounting for the majority of marketed surplus, and up to half the farming population being net buyers of food. Although the data is incomplete and varies by context, Figure 2 captures common features across many developing countries³².

Figure 2: Indicative Model of Farm and Rural Household Segment

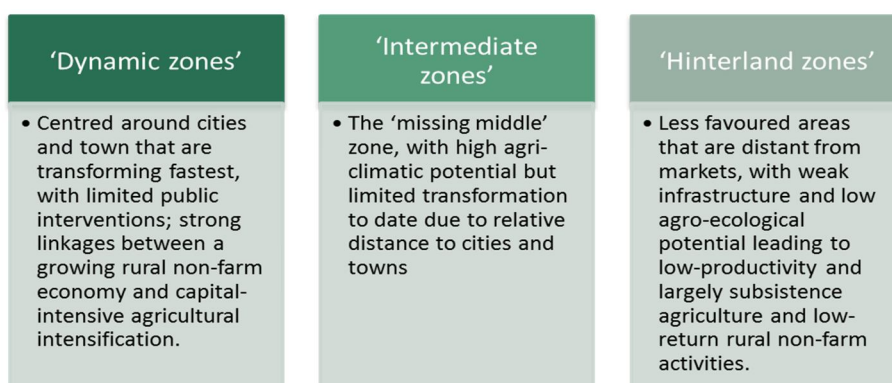


This approximate distribution has a number of important implications for how DFID should approach agricultural transformations and rural transitions:

- Firstly, only a small fraction of farms are medium or large. These farms can play a catalytic role in a specific area or value chain, driving wider investment and aggregating supply from small-scale farms; but their small number and constraints to land may limit their potential contribution to rural development³³.
- Secondly, around 10% of smallholders are already commercial farms that produce the lion's share of food in many domestic markets and participate in global value chains. Productivity growth in this segment can play an important role in rural development, driving demand for non-farm goods and services, raising demand for wage labour and improving access to food.
- Thirdly, the intermediate category of emergent or potential small-scale commercial farms presents both an important opportunity but also a challenge for development. Tackling the constraints that currently prevent these farms from becoming profitable may seem very costly, but looking only at the alternative of securing productive jobs in other sectors could put too much pressure on the non-farm economy that it is not able to meet.³⁴
- Lastly, a strategy needs to be developed for the significant number of farming households that currently depend on agriculture for subsistence but have low potential to turn farming into a profitable business. Agriculture is not likely to provide a sustainable pathway out of poverty for many households, but it remains a vital safety net and foundation for food security in the short term. This calls for continued support to subsistence agriculture (hanging in) during the transition to build resilience as a 'holding strategy' whilst proactively investing, in parallel, to create alternative economic opportunity outside agriculture.

In parallel, it is also important to recognise the different potential and opportunity within different geographical areas or 'zones'. Studies of rural and agricultural development processes, point to a useful distinction between the three broad zones described in the diagram below³⁵.

Figure 3: Geographical Zones



The implications of these different zones will be discussed in more detail below but the following points are noted here:

- In 'Dynamic zones', the relatively high density of people and infrastructure and a growing (rural) non-farm economy creates opportunities for both commercial agriculture as well as off-farm employment, supporting both *stepping up* and *stepping out*.
- In 'Hinterland zones', the low density of people and infrastructure, long distance to markets, and low agricultural potential tend to lead to 'thin' markets that only support low-return farm and off-farm activities, with limited prospects for 'stepping out' of agriculture. This is where a significant share of subsistence farmers are likely to be located, with limited prospects for both *stepping up* and finding higher return employment off-farm in situ.
- The 'intermediate zones' may hold significant potential, provided they can be effectively integrated with dynamic zones and larger markets, and the public and private investment can create the necessary density of economic activity to support both agricultural commercialisation and related off-farm employment.

Part 3 is divided into **five sections**:

- 'Getting the Basics Right'** – What are the basic conditions and requirements for agricultural transformations and rural transitions?
- 'Promoting Agricultural Transformation'** – How best to promote inclusive agricultural commercialisation and agroindustry development?
- 'Rural Transitions and Resilience'** – How support agriculture as a holding strategy (hanging in) while facilitating transitions into productive opportunities outside of agriculture (stepping out)?
- 'Cross-cutting priorities'** – This section looks at three cross-cutting priorities relevant to the previous two approaches: (a) promoting safe and nutritious food; (b) building sustainable and resilient growth and transitions paths; and (c) supporting inclusive transformation and transitions.
- 'The case for intervening'** – What are appropriate roles for public and private actors and when are public interventions required?

Getting the Basics Right

Successful agricultural transformation and rural transition depend on an enabling policy environment being in place and a public sector commitment to the necessary investment in infrastructure. Investment in public goods and an improved investment climate are likely to

benefit all segments of the rural population and also support growth in the rural non-farm economy.

- Successful agricultural transformations over the last 50 years have all been preceded by and built upon significant public investment in rural infrastructure, including roads, energy, irrigation and markets³⁶. A major constraint to increased investment in African agriculture reported by agribusinesses is the lack of rural roads and energy supply³⁷. Upgrading and then maintaining rural roads is costly, and in most cases there are insufficient incentives for the private sector to invest, demanding significant public investment. This will need to be prioritised, considering strategic opportunities to promote agricultural transformations, e.g. in *intermediate zones*, as well as investments that improve connectivity and mobility between *hinterland zones* and other areas. In intermediate or hinterland zones, where a low density of users makes rural electrification too expensive, support for private mini-grids using renewable energy sources may be a better option.
- An enabling policy environment, including regional and international trade policy and rules, and a supportive investment climate are also essential for transformation. This should include a national regulatory environment and regulatory capacity that reduces the costs of doing business while supporting minimum standards. Supportive regional trade policy and global rules under the WTO and effective trade facilitation are also essential to enable low income countries to take advantage of trade opportunities in regional and international markets. Effective land governance and land tenure security are also essential for both investment in and transitions out of agriculture³⁸.
- Building government capacity to deliver appropriate services, supporting a political settlement for long-term investment in public goods, and through consistent agricultural policies (particularly in food markets) are also critical³⁹. While agriculture is a predominantly private sector activity, agricultural investments and growth are particularly sensitive to government policy and market interventions for the following four reasons:
 - Private investments in agriculture tend to rely heavily on public goods, the provision of which depends on a political settlement that supports long-term investment;
 - Ad hoc government interventions in markets tend to undermine and dis-incentivise private investment, e.g. free food or seed distributions before elections and in the absence of acute food insecurity undermine private suppliers and discourage future investment;
 - Coordination failures in agricultural value chains (see page 21, below) may require some form of publically supported action to encourage coordinated investment; and,
 - Certain kinds of investment, e.g. in mega-farms, can have significant impacts on poor people's livelihoods.

The political economy of agricultural policy making, and political incentives that governments and officials have to invest or intervene in food and agricultural markets, have a significant influence on the pace and pattern of agricultural development and growth.

Technology and innovation are equally critical to agricultural transformation and rural transition, not least as a key driver of productivity growth and because of the way technology affects land and labour productivity. Climate change and rising oil prices also demand new technology that can raise productivity while using less fossil fuels.

- Successful agricultural transformations depend on:
 - (a) availability and access to relevant technology (e.g. that raises yields and drought tolerance of crops, improved farmers' access to market information, lowers farm labour requirements or enhances processing and value addition), and
 - (b) farmers, traders and processors having the capacity and incentives to use available technology.
- The availability of relevant technology requires global, regional and national research and development that responds to the priority needs of farmers and the agrifood sector, recognising the different needs of different levels of farms, geographical zones and value chains (see below). Market failures are likely to lead to significant underinvestment in technology where uptake is constrained by weak purchasing power and/or transaction risks. Innovations in mobile technology may create opportunities to provide existing services more cheaply and/or extend them to new users.

- Capacity and incentives to use available technology depends on a number of different factors, including the ‘basics’ (see above) being in place, specific action to address market failures in agricultural service markets (agro-dealers, seasonal finance and risk insurance), and, in some cases, transfers that improve farmers’ access to inputs. Attention should also be paid to the development of effective national agricultural research and development capacity, to support the uptake of global research products and testing innovative approaches to increase the competitiveness of national agribusiness.

Promoting Agricultural Transformation (Stepping Up)

Agribusiness investment and value chain development downstream from the farm are essential for diversification out of primary commodity exports and adding value to the sector, which in turn are vital for growth and wealth creation in low income countries⁴⁰. This also requires coordinated activities between public and private actors along value chains, to create the right combination of factors for increasing productivity and profitability.

- Agribusinesses create jobs and wage-labour opportunities, develop market opportunities and build sustained demand for farm production, and drive investment along the whole value chain⁴¹. Sustained productivity growth in agriculture relies on sustained growth in market demand downstream from the farm. Interventions aimed at promoting productivity growth and value addition in agriculture therefore need to focus on whole value chains and the market systems that support them before identifying the specific market failures or other constraints to investment.
- Four important questions need to be addressed in order to identify where and how to promote agribusiness and value chain development that delivers poverty reduction at scale:
 - First, which scale of farms and scale of agribusinesses should be prioritised?
 - Second, what *institutional arrangements* should be promoted to ensure agribusiness investments benefit the largest number of small-scale farms?
 - Third, which value chains or related agribusiness investments are likely to *benefit the largest number of poor people* in the long run, as producers, workers or consumers?
 - And lastly, what are the main *risks* from prospective agribusiness investments that need to be prevented or mitigated?

These will be discussed briefly below. A further important question concerns the *additionality* of private sector investment leveraged by public action and this is discussed on page 25, below.

Farm and Agribusiness Scale

- The continued existence and competitiveness of relatively small-scale farms in both food and high-value value chains in many parts of the world, including in Europe and middle income countries (MICs)⁴² and emerging evidence from new research⁴³, suggest that farm size alone is not the main determinant of commercial potential and farm profitability. It is generally recognised that small-scale farms have a competitive advantage in managing farm labour, while larger farms tend to have advantages in managing transactions beyond the farm gate, which are critical in accessing capital and information required to meet market requirements in more demanding value chains⁴⁴. In some contexts, such as rain-fed agriculture, minimum farm size, e.g. above one hectare⁴⁵, may be a useful proxy for economic viability but in practice this threshold is likely to be a function of other factors, including ownership of non-land assets, distance to market, organisational capacity and agro-ecological potential⁴⁶.
- Agribusinesses already tend to engage with the top 10% of small-scale commercial farmers without significant public support, although this is likely to be limited to dynamic zones where the ‘basics’ are in place. An important focus area for public action is linking emergent small-scale commercial farms to agribusiness and their value chains and supporting such linkages with existing commercial and emergent commercial small-scale farmers in *intermediate* zones. This requires investment in

infrastructure and other basics, as well as support for interventions that address the ‘soft constraints’ that small-scale farmers face to become profitable enterprises linked into value chains.



Sunflower oilseed processing plant in Tanzania – the DFID-funded East and Southern Africa Staple Food Markets Programme supports agribusinesses that can buy products directly from smallholders and support regional staple food trade. ©DFID FoodTradeESA/Marco Serena

- Given the important role played by agribusinesses in value chain investment and development, it is also important to ask what scale of agribusiness, i.e. from micro to small and medium enterprises (SMEs) or large enterprises, has the greatest potential contribution to make to inclusive transformation processes, and where are DFID’s efforts best invested to support this. It will vary along the value chain, but interventions should consider the following points: product-specific handling or processing requirements (and associated investments) may favour a minimum scale of business; larger agribusinesses may be able to play a strategic role accessing larger markets for small to medium-scale traders or processors, especially where local demand is a constraint to enterprise growth; one or more agribusinesses operating at sufficient scale may be able to address multiple market failures at once and compensate, at least in part, for underdeveloped infrastructure, although this is unlikely to be a sustainable strategy in the long term.

Institutional Arrangements

- Institutional arrangements are a means of coordinating transactions between actors at the same or at different stages in the value chain to address markets failures and/or reduce transaction costs and risks. The two main types of institutional arrangements in agriculture are (a) vertical coordination arrangements between actors at different stages of the value chain, e.g. between farmers as ‘outgrowers’ and a ‘hub’ farm and/or processing plant; and (b) horizontal coordination between players at the same stage of the value chain, e.g. between farmers coordinating production and supply collectively through a farmer organisation. In some value chains both types of coordination are combined to reduce transaction costs.

- The demands created by some products and associated supply chains create incentives for private sector to coordinate investments to overcome market challenges that lead to risk of failures, for example through contract farming arrangements where the supply of inputs and other services is tied in to crop purchases. In other value chains, such as domestic food staple chains with more intractable coordination problems (e.g. where companies are unable to exclude side-selling) and in *intermediate* and *hinterland* zones, public sector intervention may be required to support the development of appropriate institutional arrangements.
- In recent decades, governments and many other organisations have promoted the development of farmer organisations with the aim of reducing external transaction costs for service providers and buyers engaging with small-scale farmers and strengthening farmer's bargaining position. While farmer organisations are theoretically compelling with some notable success stories, they tend to require considerable investment to become sustainable businesses and internal transactions costs may often outweigh the external gains. An alternative approach promoted by some organisations focuses instead on linking smallholders as out growers to larger farm and/or processing agribusinesses in a 'hub and spoke model'. This model exploits the scale advantages and management capacity of formal firms but may not be easy to replicate at scale in less regulated markets.

Value Chains

- A useful distinction can be drawn between the value chains supplying supermarkets or international markets and the supply chains for domestic and regional food markets. In practice these two exist at different ends of a spectrum and farms and agribusinesses may engage with multiple value or supply chains along it. Different value chains create different opportunities, but also barriers, to for small-scale farmers and workers. Higher-value value chains for supermarkets or export tend to offer higher margins but also more demanding production and processing requirements. The latter are therefore more difficult to enter for small-scale commercial farmers. Domestic or regional food markets tend to be less demanding, although regional trade is increasingly regulated, with lower access barriers.
- This distinction is partly reflected in two market transformation processes that have been evident across many parts of Asia and are likely to emerge to some degree in Africa over the coming decade⁴⁷. This includes a 'modern revolution' centred on large-scale agribusinesses and medium to large-scale farms, but with many examples of small commercial farm engagement, and largely driven by the retail sector or second stage processing or manufacturing firms with a significant FDI component; and a 'quiet revolution' centred largely on small and medium-scale farms and firms and incorporating less formal markets, driven largely by domestic investments in 'first-stage' processing, wholesale markets and/or agricultural input services⁴⁸.
- Global value chains linked to the 'modern revolution' tend to be a prime focus of development interventions, as the entry points are more obvious and associated investments are considered less risky. However, inclusive growth will depend as much if not more on transformation and a 'quiet revolution' in domestic and regional food chains with lower access barriers and potential for significant consumption linkages through lower food prices relative to wages. Care needs to be taken that politically savvy investments ensure that support does reduce poverty. The following table sets out a number of important considerations to guide prioritisation of different types of value chain.

	(Global) Value Chains and 'Modern Revolutions'	Regional and Domestic Food Value Chains and 'Quiet Revolutions'
Jobs/Wage Labour	Plantation agriculture and processing can create significant jobs dependent on degree of mechanisation. Jobs likely to be better paid than informal sector but insufficient to lift people out of poverty ⁴⁹ .	Productivity growth on large numbers of commercial small-scale farms can create significant demand for wage labour and bid up wages (as emergent farmers withdraw labour from market).
Farm incomes	Involves higher-value products that can generate higher returns and/or more stable contracts for farmers able to access these chains ⁵⁰ . But high barriers to entry may exclude most farmers ⁵¹ .	Lower barriers to entry create greater opportunities for large numbers of farmers but limited prospects for value addition. Access to sufficient land therefore key determinant of impact ⁵² .
Food prices and linkages	Limited investment in food staples and focus on larger farms means only modest contribution to poor people's food purchasing power.	Main focus on food staples and raising productivity can lower prices relative to incomes with significant impact on poverty and growth.
Investment incentives	Incentives for commercial investment to source product and upgrade the chain. But greater difficulty demonstrating the added value of public investment.	Low barriers to entry may reduce incentives for agribusiness investment, slowing down transformation and requiring public coordination role and systemic interventions such as jobs.
Risks	Large-scale land acquisitions for plantation agriculture may affect the property and tenure rights and livelihoods of existing land users and owners, and need to be managed accordingly.	Global initiatives on Responsible Agricultural Investment focus largely on global firms, bypassing responsibilities of domestic companies involved in food staple chains. Efforts to model responsible investments with global firms need to bring along regional and national firms as well.

Investment Risks

- A recent World Bank study⁵³ identified land transactions and land disputes as the main negative impact of investments, both on the communities whose land or pasture access or rights were affected, and on the financial and operational interests of the firms concerned. While there are other risks associated with agribusiness investments, including water use or poor labour conditions, land transactions stand out as the single biggest, material risk pointing to the need for significant investment to strengthen land governance regimes and land tenure security.
- Many global agribusinesses increasingly recognise these risks and are developing internal systems to manage them. But many more, in particular domestic companies in developing countries, require support to understand and manage these risks effectively. Public action is also needed to ensure greater transparency around investments so that companies are held accountable for any negative impacts. This may include building government capacity to pre-screen investors, monitor investments effectively and be clear on their role in any grievance process.

Rural Transitions (from ‘Hanging in’ to ‘Stepping out’)

While farm production is unlikely to provide a pathway out of poverty for the majority of the rural poor, most will continue to depend heavily on own-account farming for food security and as an importance source of cash income for the foreseeable future. Only when there are sufficient numbers of productive jobs created outside of agriculture will that change. A dynamic approach is needed, which builds the resilience of smallholders and raises returns to existing farm assets, at the same time integrating such programmes with other interventions to promote growth, jobs and increased incomes in the rural non-farm economy. Facilitating greater mobility between sectors and rural and urban areas will be essential.



Women headed households supported with productive assets including cattle. The DFID funded Chars Livelihoods Programme (CLP) aims to diversify and strengthen the livelihoods of extremely poor households living on the chars (sand islands) of north-west Bangladesh. ©DFID/CLP

- As noted in Part 2, the spatial and sector transition from primary agricultural production to off-farm jobs outside rural areas is likely to take decades. Furthermore, the number of poor people in poor areas currently dependent on subsistence agriculture compared to the rate of job creation in other sectors in most developing countries suggests that the majority of the rural poor will continue to rely on farm production for their livelihoods and household food security for the foreseeable future. In practice, rural transitions are likely to involve a gradual and non-linear process over time, with significant discontinuities across different household members, in particular men and women and different generations.
- Facilitating rural transitions therefore requires three complementary actions: Firstly, it is vital to continue to support subsistence agriculture, building resilience to shocks and climate change and raising productivity incrementally to improve food security and build household assets, Secondly, there needs to be a strong focus on creating off-farm job or wage labour opportunities, in commercial agriculture, agroindustry or the rural non-farm economy; and thirdly, public sector action should focus on building linkages and promoting mobility between rural and urban areas and/or between farm and

off-farm opportunities. Despite the rich historical experience and diverse pathways of these transitions in developed countries, there appears to be relatively little knowledge and expertise on how best to facilitate such transitions and limited experience integrating agriculture programmes with broader interventions aimed at promoting growth and jobs in other sectors. There is a need for new research and learning to inform future practice.

- Rural transitions require an enabling environment that facilitates spatial and sector mobility. Firstly, transport infrastructure is essential to assist mobility, particularly between hinterland zones and intermediate zones, where the majority of subsistence farmers are likely to be based; secondly, promoting stable food markets is critical to enable poor households divert labour from subsistence production to off-farm employment where opportunities exist; and lastly, interventions to strengthen land governance and tenure security and particularly support for land leasing, enable the rural poor take up off-farm opportunities without relinquishing control over their main productive asset – land and the resources on it.
- While the case for continued support to subsistence agriculture is clear and while interventions can draw on a significant body of evidence and experience on how to build resilience and raise productivity incrementally, the challenge in the future is to do so in ways that (a) do not lock households into low-return agriculture-based livelihoods, and (b) simultaneously facilitate linkages to off-farm income opportunities. Such interventions will also need to respond to the challenge of ageing farm populations and a growing proportion of *de facto* women-headed households as men migrate to find jobs in urban centres. Support to agriculture in these contexts will need to draw on appropriate technology, while overcoming the persistent challenge of finding cost-effective means of promoting knowledge-intensive approaches at scale among dispersed and largely unorganised farms.
- Promoting linkages to off-farm income opportunities requires designing and delivering agriculture and social protection programmes with this in mind, whilst also increasing investment to support growth of the rural non-farm economy and labour-intensive agroindustry. Mobility in terms of transport infrastructure, transport costs and, for women, time and social norms needs to be promoted actively, e.g. by structuring transfers to facilitate transport to urban centres where there are job opportunities. As economies develop, more attention also needs to be paid to upgrading skills to enable the rural poor to access productive jobs.

Cross-Cutting Priorities

Nutritious and Safe Food

Policy and programmes to promote agricultural transformations need to seek to increase nutritional benefits. With rapidly changing demands, the risk of the agrifood sector leading to poor health outcomes is also growing. Interventions in the agrifood sector should be ‘nutrition sensitive’ by taking the opportunity to build in nutritional benefits, monitor the impact on nutrition outcomes, including undernutrition and overnutrition, and shape them to increase their potential to positively impact on the underlying causes of malnutrition drawing on the growing evidence base.

- The links between the agrifood sector and health outcomes has been a growing public health and economic concern in developing countries over the last decade. This focuses on three at least partly interconnected areas: undernutrition; over-nutrition or overweight and obesity; and food safety. Theory and some evidence on the links between agricultural development and improved nutrition outcomes all suggest agriculture and the agrifood sector has a key role to play in addressing some of the underlying causes of undernutrition and influencing overnutrition. However a lack of high quality studies of sufficient scale and length to date make it difficult to draw clear conclusions about its effect on undernutrition. A recent review of the evidence concluded that, apart from a positive impact for bio-fortified crops, the interventions reviewed had inconsistent or mixed effects on undernutrition (although the available evidence base is still limited).⁵⁴
- Significant research efforts are therefore currently underway (including with support from DFID) to improve understanding of the key variables and drivers in agricultural interventions and growth that improve undernutrition outcomes. New research is needed to better understand the links between

agricultural transformation and rising obesity, and identify appropriate intervention strategies. Based on existing knowledge key priorities include: tracking the nutritional impact of existing agricultural programmes to build the evidence base and identify key drivers; more analysis of the cost-effectiveness of different interventions and pathways⁵⁵; and improving the understanding of how to harness or steer agrifood transformations to promote dietary diversity and improved food quality, e.g. developing weak or missing value chains with strong nutritional value such as dairy and horticulture, improving food safety, or not providing support to value chains that are likely to promote and lock in unhealthy diets.



Female farmers displaying 6 varieties of orange-fleshed sweet potato that have been harvested and cooked through an initiative with the International Potato Centre, which is supported by DFID via CGIAR. ©S.Quinn/CIP

- As noted in a recent ODI study, the number of overweight or obese adults in developing countries more than tripled between 1980 and 2008 and in 2008 there were more affected people in developing countries than in rich countries⁵⁶. While some of the key drivers of the nutrition transition – from diets high in cereal and fibre to Western diets which are high in sugars, fat, and animal-source food – lie outside the agrifood sector, public interventions and investment in the transformation of the agrifood sector may be able to influence the pattern of this transition and encourage more healthy diets with lower economic costs for society in the long run. However, there is still relatively little evidence on what public interventions are the most effective and some high-burden countries have only recently introduced new measures in an attempt to stem an obesity epidemic.
- In theory, agrifood systems are expected to impact on the underlying causes of malnutrition through five main pathways: the diversity and quality of food produced; how food is distributed, stored and marketed; relative food prices; incomes generated through agriculture; and how agricultural practices affect women’s time, status and care practices (see Figure 4 below). Public policy and investment that affect opportunities and incentives in these areas are likely to contribute to positive or negative nutrition outcomes, even if these are often driven by many factors outside agriculture, including consumer demand for food, social norms and wider economic policies.

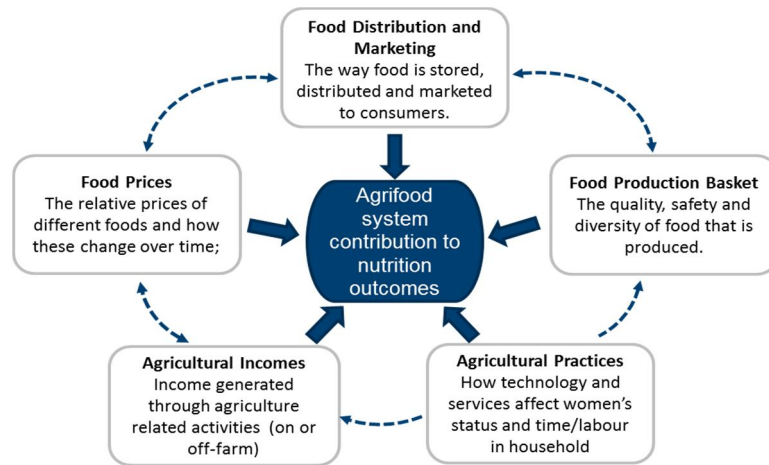


Figure 4: Impact pathways from agriculture to nutrition

- Agricultural commercialisation with increased and potentially unregulated pesticide use and more intensive farming practices also increases the risks to human health from hazardous pesticide residues, food adulterations, naturally occurring toxins, such as aflatoxin, and zoonoses. This calls for stronger regulation and monitoring and building public awareness and demand for safe food.

Resilience to Climate Change and Environmental Sustainability

Climate change, rising and changing food demand and resource scarcity present significant challenges to agriculture production, growth and the whole food system. At the same time it is difficult to reduce the net emissions of greenhouse gases from agriculture that contribute to climate change. By nature, this will require difficult trade-offs between raising productivity to promote growth and poverty reduction, building resilience to climate risks, and reducing agriculture's impact on the environment.



Support to diversified crop systems and ecologically sound practices that support climate, food security and nutrition outcomes in South Nyanza, Kenya. © Iris Krebber/DFID

- Interventions to increase agricultural productivity and food production to meet rising demand will need to be resilient to increase in extreme weather events (especially droughts and floods), and to long-term increases in temperatures and changes in precipitation that will reduce harvests in many parts of the world⁵⁷. All agriculture systems will be affected and will need to be more resilient and 'climate smart'. The most vulnerable farmers, livestock keepers and communities will be those in arid and semi-arid regions and low-lying coastal regions, where capacity to respond is weakest. Both subsistence and small and large-scale commercial agriculture will need to adopt more environmentally sustainable and climate smart practices.
- The agrifood system currently contributes between 19%-29% of global greenhouse gas emissions, of which over 80% is contributed by primary agricultural production. Whilst the main burden of mitigation falls on more intensive agricultural production systems, the scale of the problem means mitigation and productivity win-wins should be promoted in all agriculture systems. This needs to include a halt to conversion of primary forests to agriculture use.
- Tackling these challenges requires simultaneous action on multiple fronts. One priority area is technology development and adoption, including supporting increased adoption of existing sustainable agriculture and climate smart practices and technologies (e.g. agroforestry and conservation agriculture), prioritising the most vulnerable farm segments and regions, and continued research investment to develop technologies and practices adapted to the future climate (e.g. drought, flood, saline or temperature tolerant crops) and that reduce emissions. More investment is also needed to improve prediction of future climate events, including early warning systems and seasonal and daily weather forecasts. Innovation is needed to develop and increase access to appropriate insurance and financial products that enable farmers (arable and pastoral) to reduce and manage the risk of adverse climate and weather. And lastly, action is needed to create stronger incentives for commercial farms and agribusinesses to internalise the cost of mitigation practices and adopt sustainable agricultural practices.

Inclusion and gender

For agricultural transformations to be inclusive they need to create equal opportunities for women and men, help women catch up where needed, and ensure marginalised groups and hinterland zones do not get left behind. Agricultural interventions should aim to improve women's and other marginalised groups' access to land, inputs and agricultural services, whilst also enabling them to access opportunities in other sectors which may offer better conditions and remuneration. While the cost of raising productivity significantly in *hinterland* zones is likely to be prohibitive, action is needed to support these households to connect to and benefit from agricultural transformations in the dynamic and intermediate zones.

- Evidence suggests women represent an estimated 43% of the global agricultural workforce, but have unequal access to productive resources in agriculture and are more likely to be engaged in more precarious agricultural work⁵⁸. Productivity or yield gaps between male and female farmers, driven by unequal access to land, agricultural inputs, services and markets and women's significant role in the production of food crops, are often used to argue for more investment in to raise the productivity of the agricultural activities that women typically engage in⁵⁹. Such investment may be appropriate in some contexts but risks locking women into low-return activities and may reinforce unequal gender roles.
- Creating equal opportunities for women and marginalised groups, including youth, requires action to tackle a range of discriminatory barriers – both formal and informal – such as legislation including land and property rights and social norms including gender roles which drive girls' and women's time poverty. It is also important to consider risks and unintended consequences of interventions and change in the agrifood sector, such as the introduction of labour-saving technology, which may benefit or harm women's existing roles and activities in agriculture, e.g. by displacing important sources of wage labour or freeing women from unpaid household work. As noted above, leaving no one behind also requires interventions that facilitate labour mobility and connect poor households in hinterland zones to job opportunities linked to agricultural transformations or growth in other sectors in intermediate and dynamic zones.

- A key challenge for the future is to move from positive but isolated projects that promote inclusion, including greater opportunities for women in agriculture, to transformative change within the wider sector. This requires integrating activities that promote gender equality, for example, into existing agricultural interventions as well as support for stand-alone affirmative interventions that target women or marginalised groups specifically. A primary step is to improve the tracking of gender impacts in all relevant agricultural programmes and build in clear 'gender inclusion' objectives and results into new programmes. More research is then required to identify the key drivers of gender inequality or the exclusion of marginalised groups in agriculture. Affirmative action is also required to create incentives for agribusinesses to source from women farmers or disadvantaged groups and build capacity so that excluded groups can meet market demands. The objective is to strengthen the benefits for women along entire agricultural supply chains, not just in primary production.



Members of the community farming group at work in their community fields in rural DR Congo. After receiving training on healthier eating and nutrition from the NGO Action Against Hunger, the community organised itself into voluntary groups and came up with the idea for a co-operative farm. © Russell Watkins/DFI D

The Case for Intervening

Agriculture and agribusiness is predominantly a private sector activity. Investment which results in a positive impact on poor people's incomes and a country's economic growth is dependent on the capacity and incentives of a broad range of actors, ranging from smallholder farmers to large-scale businesses. However, broad-based agricultural transformations that leave no one behind require public interventions to address coordination and market failures in addition to investing in public goods and creating an enabling environment.

- In many DFID focus countries, particularly in Africa, there is a continued need for significant public investment in road networks, transport infrastructure and the energy grid to achieve a minimum

threshold required to facilitate agricultural transformations as well as rural transitions. Where there are incentives for private sector investment, e.g. in mini-grids, these should be actively promoted but this is unlikely to substitute for significant public investment. Continued public funding for global and national research and innovation will also be required, including a greater focus on the differentiated needs of different farm segments and geographical zones⁶⁰.

- Public interventions in the agrifood sector should be based on a clear assessment of the capacity and incentives faced by private actors and of the market and coordination failures that lead to underinvestment and suboptimal development outcomes. The following table outlines the incentives for private investment linked to three stylized investment scenarios and considers appropriate public roles in relation to these.

Investment scenarios	Examples of this scenario	Public roles
Existing incentives for private sector investment	<ul style="list-style-type: none"> • Established markets for global value chains and urban supermarkets, i.e. linked to ‘modern revolutions’ • Top 5-10% of smallholder farms • <i>Dynamic zones</i> 	<ul style="list-style-type: none"> • Improving investment climate • Promoting ‘responsible investment’ focusing in particular on land governance • Building capacity to lower access barriers for <i>emergent</i> small-scale commercial farms.
Commercial potential but underinvestment due to high risks, transaction costs, collective action problems, etc.	<ul style="list-style-type: none"> • Domestic and regional food supply chains with potential for ‘quiet revolution’ but with significant coordination problems (e.g. side-selling risks preventing investment) • Emergent small-scale farmers with commercial potential but high transaction costs • <i>Intermediate zones</i> with high potential but poor infrastructure 	<ul style="list-style-type: none"> • Investing in ‘basics’, in particular roads and energy • Improving investment climate • Promoting market coordination and specific interventions to address market failures (e.g. M4P) • Support for institutional arrangements, including contracting and farmer organisations, that reduce transaction costs.
Limited long-term commercial potential	<ul style="list-style-type: none"> • Informal staple food markets • Subsistence farms without commercial viability • <i>Hinterland zones</i> 	<ul style="list-style-type: none"> • Investing in agriculture as holding strategy • Supporting mobility

- In global value chains and in *dynamic* zones there are usually strong incentives for private actors, whether processors, agro-dealers or traders, to coordinate investment and information flows within the value chain to overcome risks and costs faced by specific actors⁶¹. Dynamic zones are likely to have the lowest need for public investment, with the focus shifting to developing appropriate standards and regulation. In these value chains, public interventions may encourage responsible business practices or shift private risks and incentives to invest in business models that have a greater development impact, e.g. involving increased sourcing from smallholders and an associated investment in a larger processing facility.
- Public investment may have an even greater impact in less formal food value chains and in *intermediate* zones with significant potential but underinvestment due to high transaction costs and risks. Here, private incentives to coordinate investment are likely to be low, and investment and growth will often depend on publicly supported coordination and targeted interventions to reduce the risks and transaction costs faced by different private actors. For example, public support for farmer organisations can reduce the transaction costs faced by buyers and service providers although such organisations also generate their own internal transaction costs that need to be factored in to the equation. Public support for investment centres and market coordination agencies may also play an important role.

- Public interventions should be strategic, aiming at systemic change and/or concentrating efforts in a specific region or sub-sector rather than supporting isolated investment projects or value chains that create dispersed 'development islands'. This will often require close coordination between governments, donors and private sector to ensure impact at scale. Governments and donors have supported a wide range of instruments and intervention approaches to promote private investment in agriculture, including market systems programmes, development funds targeted at specific value chains, challenge funds, and support for investment centres or market coordination agencies. However, there is limited evidence to date to assess their individual or comparative effectiveness and this is a key priority for future research and analysis.

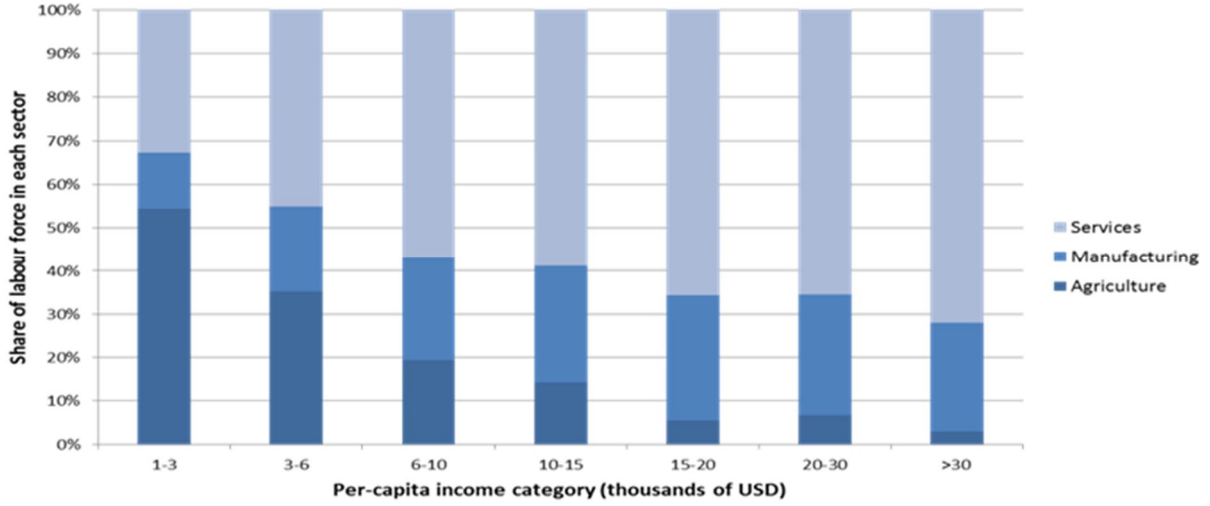
Conclusion: Key Implications for agriculture interventions

- Agricultural development requires a differentiated approach tailored to the opportunities and challenges of different categories of farmers, agro-climatic and geographical zones, and value chains.
- Agribusiness and value chain development are critical to agricultural growth, and require careful analysis to identify which models and markets hold the most promise for development, and where/how DFID can best invest time and resources. The greatest opportunities for development impact may lie outside the value chains and geographical areas that tend to receive most attention.
- Programmes promoting agribusiness development need to consider the potential negative risks of investments to workers and more broadly local communities, and, where necessary, help build capacity to manage these risks, and promote greater transparency and accountability for negative impacts. DFID will further explore its potential role to positively influence and impact.
- Continued support to subsistence agriculture will remain a priority for DFID, given millions of rural households will continue to depend on agriculture as a vital source of food and income, is critical. However, interventions need to be designed to promote rural transitions, focusing simultaneously on facilitating mobility and building linkages to programmes promoting off-farm employment opportunities.
- Rural transitions may be supported by addressing the basic constraints faced by poor rural households, including poor infrastructure, weak land tenure security, and unstable food markets. Beyond that DFID will re-assess its own programming in rural areas and seek to refocus work on diversifying and increasing economic opportunity in rural areas and rural towns/secondary cities.
- Agriculture programmes need to encourage nutrition-sensitive interventions that ensure the agrifood sector plays its part in promoting safe food and diverse, healthy diets.
- Without change, the agrifood system will continue to degrade the environment and compromise its capacity to support future food production and wider food security. DFID will support action to bring about a step change in technology development and uptake, and in taking decisions on appropriate, well-evidenced trade-offs for different regions and categories of farmers.
- DFID's agriculture programmes should improve how they track impacts on women and other marginalised groups, while supporting concrete action to create equal opportunities in agriculture for women and women and marginalised groups.
- Private incentives and risks need to be understood better along the value chain to identify the minimal scale and optimal type of public intervention required, and where DFID should focus its interventions, to unlock additional private sector investment.

Annexes

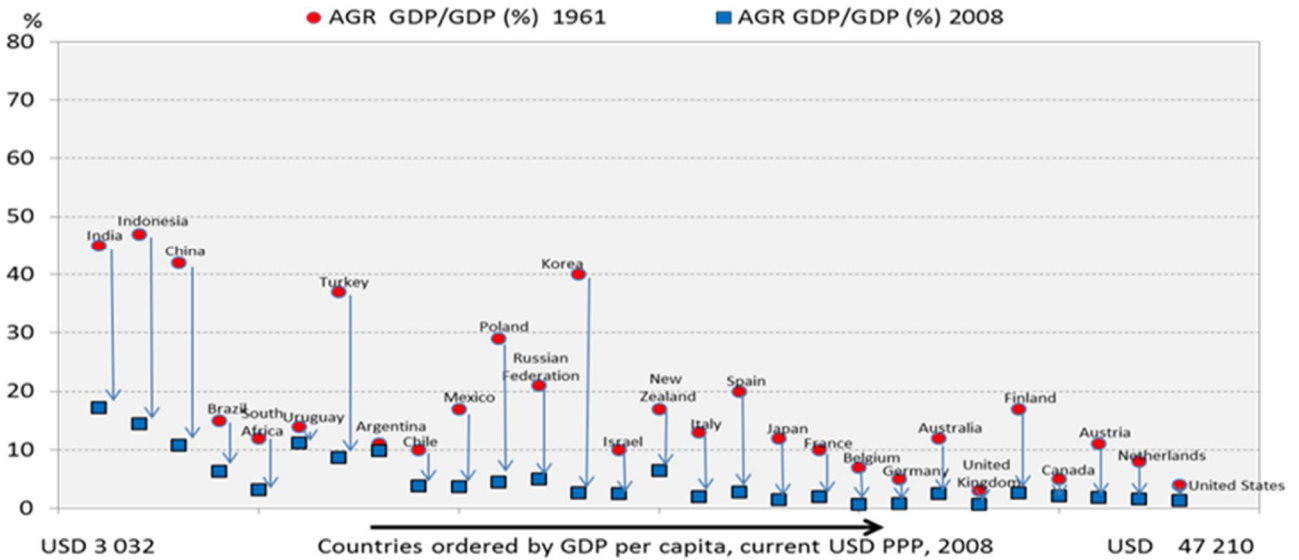
Annex 1: Agriculture's Changing Share of GDP and Employment with Economic Transformation.

Graph 1: Agriculture's Changing Share of Employment with Economic Transformation

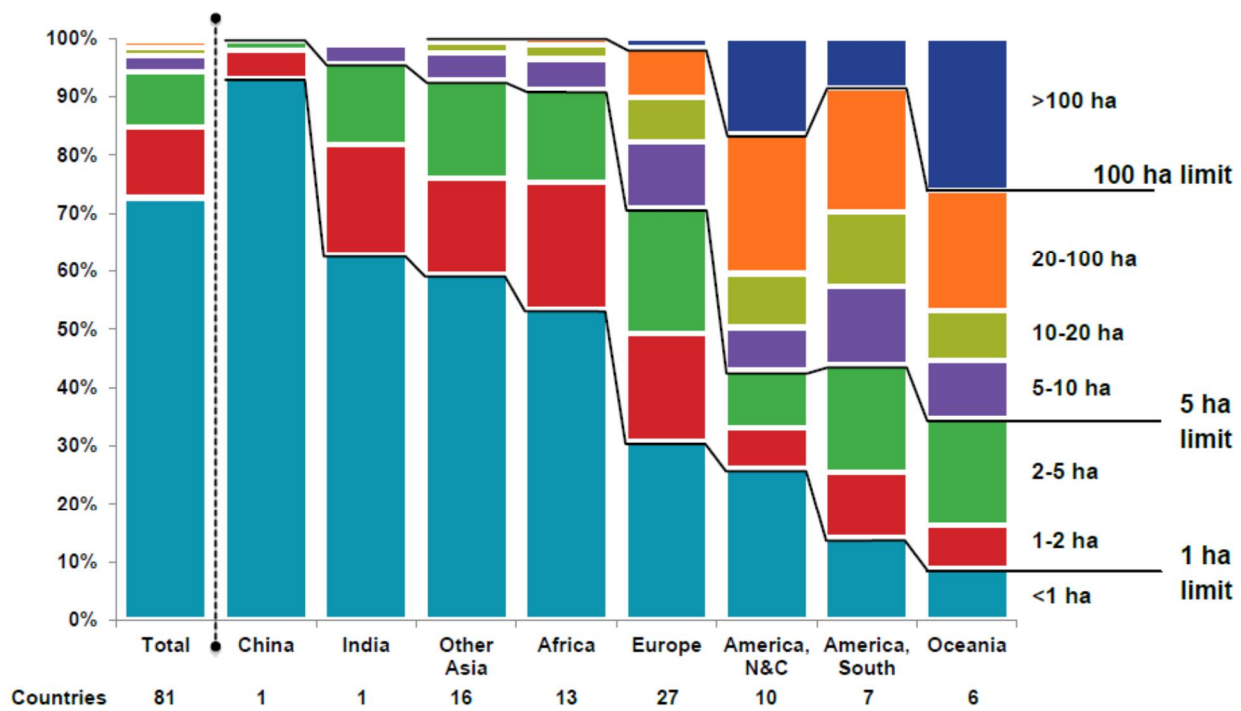


Graph 2: Agriculture's Changing Share of GDP with Economic Transformation

Evolution of agriculture's share of GDP in various countries (1961 to 2008)



Annex 2: Regional Diversity in Holding Size Patterns in 81 Country Sub-set of WCA-FAO



Source: adapted from Belières *et al.* (2013); elaboration from FAO, WCA datasets.

Annex 3: Agriculture Diagnostic

Interventions in agriculture should be based on a careful consideration of where and how best to intervene in agriculture (and the justification for doing so) to achieve the priority objectives in a given country. These considerations should ideally draw on some analysis of:

- a. The potential **contribution agriculture can make to inclusive growth** (i.e. driving vs. supporting or spreading growth) and the anticipated speed/scale of productive job creation outside of agriculture in the short, medium and long-term. All this has implications for the scope and scale of interventions in agriculture over the same time periods. Linked to this, it is useful to assess to what extent observed urban migration is at present driven by demand for jobs or by distress-based exits from agriculture.
- b. The relative **importance and commercial potential of agriculture in the livelihoods of the rural poor**. Ideally this should include detailed analysis of the scale and distribution of these stylised segments (adapted to the context) for each country;
- c. Key **barriers to and cost of raising productivity** in different sub-sectors
- d. What **broad areas or types of interventions** (including some consideration of sub-sector, business models and segment of rural population targeted) are likely to make significant contribution to higher incomes, jobs, consumption linkages or tax earnings. Linked to this, it is important to consider the relative importance of direct and indirect linkages for poverty reduction and growth, e.g. some programmes may benefit the less poor directly through higher farm incomes but could benefit the poorest indirectly through wage labour opportunities and/or lower food prices.
- e. The **risk that climate change and extreme weather events** are likely to present to food security, particularly for marginalised rural households, in the short-term and changes in temperature and precipitation that will impact on to agriculture's contribution to inclusive economic growth in the long-term.
- f. Lastly, it is important to consider where best to intervene to contribute **to systemic and sustained change at scale**.

Endnotes

- ¹ DFID's Agriculture and growth evidence paper series (2014), Agriculture and Growth
- ² 'Agribusiness' here follows definition in Wiggins, S. and Roepstorff, T. M. (2011) New global realities governing agribusiness (in Yumkella et al (2011) Agribusiness for Africa's Prosperity, UNIDO) and includes: the agricultural input industry, food and beverages, leather products, textile and footwear and garment, processing equipment and finance, marketing, transport and storage services.
- ³ For all related reports see <https://www.gov.uk/government/publications/future-of-food-and-farming>
- ⁴ Ravallion, Chen and Sangraula (2007), New Evidence on the Urbanisation of Global Poverty.
- ⁵ World Bank (2013), The state of the poor: Where Are The Poor, Where Is Extreme Poverty Harder to End, and What Is the Current Profile of the World's Poor?
- ⁶ FAO, IFAD, WFP (2002), "Reducing Poverty and Hunger, the Critical Role of Financing for Food, Agriculture, and Rural Development", available at <http://www.fao.org/docrep/003/Y6265e/y6265e00.htm> and with 2010 data also at <http://www.fao.org/docrep/x0262e/x0262e05.htm>
- ⁷ FAO (2015), "State of Food Insecurity in the World, 2013", available at <http://www.fao.org/hunger/en/>
- ⁸ UNICEF, WHO, The World Bank (2012), "UNICEF, WHO, World Bank Joint Child Malnutrition Estimates" UNICEF, New York; WHO, Geneva; The World Bank, Washington, DC, available at: <http://www.who.int/nutgrowthdb/estimates/en/index.html>
- ⁹ Keats, S. and Wiggins, S. (2014) Future diets: Implications for agriculture and food prices, ODI.
- ¹⁰ DFID Agriculture and Growth evidence paper series (June 2014): Agriculture and Women (p.21), World Bank, 'World Development Report 2012: Gender and Development'
- ¹¹ Hazell and Wood, Drivers of Change in Global Agriculture (2008)
- ¹² Knox, J.W., Hess, T.M., Daccache, A. and Perez Ortola, M. (2011) "What are the projected impacts of climate change on food crop productivity in Africa and S Asia? DFID Systematic Review", DFID, London.
- ¹³ Hanan G. Jacoby (2013), Food Prices, Wages, and Welfare in Rural India, World Bank policy research paper
- ¹⁴ Primary agricultural production does not have the capacity to drive sustained growth in the long-run due two main factors: firstly, once basic food needs are met, people spend proportionately less of their income on food as incomes rise, which dampens (domestic) demand growth for many basic food stuffs relative to other goods and services; secondly, diminishing returns to scale in agricultural production provide a natural limit to continued productivity growth.
- ¹⁵ In practice small-scale farmers' readiness to leave their land for productive employment in the non-farm sector will depend on many other factors including the reliability of food markets and the ability to lease out their land or receive adequate compensation from sale. Also important to recognise cultural value of land in most developing countries which means many households may be reluctant to relinquish hold on land altogether.
- ¹⁶ This will depend significantly on their ability to extend farm size above a minimum threshold and invest to raise productivity and add value: see for example, Harris, D. and Orr, A. (2013) Is rainfed agriculture really a pathway from poverty? Agricultural Systems 123, 84–96.
- ¹⁷ Evidence from Africa suggests a growing trend of land fragmentation with falling average land holding per household in many countries below 1ha. In Asia the story is more complex with a gradual reversal and rising average land holdings in many countries. See for example: ISPC (2012) Synthesis Report for the CGIAR Foresight Study on Trends in Urbanization and Farm Size in Developing Countries: Implications for Agricultural Research source ISPC report.
- ¹⁸ In practice small-scale farmers' readiness to leave their land for productive employment in the non-farm sector will depend on many other factors including the reliability of food markets and the ability to lease out their land or receive adequate compensation from sale. Also important to recognise cultural value of land in most developing countries which means many households may be reluctant to relinquish hold on land altogether.
- ¹⁹ Wiggins, S. and Roepstorff, T. M. (2011) New global realities governing agribusiness (in Yumkella et al (2011) Agribusiness for Africa's Prosperity, UNIDO)
- ²⁰ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/183302/foodpocketbook-2012edition-09apr2013.pdf
- ²¹ World Bank (2013) Growing Africa: Unlocking the Potential of Agribusiness <http://siteresources.worldbank.org/INTAFRICA/Resources/africa-agribusiness-report-2013.pdf>
- ²² UNIDO (2014) Sustaining Employment Growth: The Role of Manufacturing and Structural Change. http://www.unido.org/fileadmin/user_media/Research_and_Statistics/UNIDO_IDR_2013_main_report.pdf
- ²³ E.g. IGC's Enterprise maps which has surveyed a number of large firms in each sector and finds that without exception, all agro-processing firms say they are not operating at capacity due to a lack of raw materials. E.g. Ghana is heavily constrained by agricultural production capacity – currently producing less than 30% of the raw materials needed by its agro-based industries

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- (Business for Development-Ghana, 2008, Agriculture is Becoming a Business: OECD). Anbessa Shoe Company in Ethiopia – employs >1,000 people and exports >4,500 shoes/day. However, despite Ethiopia having some of the highest quality leather in the world, it imports over 70% of its leather, thus struggling to expand and compete with large Chinese firms
- ²⁴ DFID's Agriculture and growth evidence paper series (2014), Agriculture and Growth
- ²⁵ This framework draws on the categorisation of opportunities set out in Collier, P. (2007), *The Bottom Billion, Why the Poorest Countries are Failing and What Can Be Done About It*. New York: Oxford University Press and in B.J. Ndulu, S.A. O'Connell, R.H. Bates, P. Collier, and C.C. Soludo eds. (2008), *The Political Economy of Economic Growth in Africa, 1960–2000*. Cambridge: Cambridge University Press
- ²⁶ Investing in agriculture as a 'holding strategy' can help manage the spatial transition from rural to urban areas and mitigate the potential mismatch between the release of labour from the land and the availability of productive non-farm jobs.
- ²⁷ The evidence (summarised in DFID Agriculture and Growth Evidence Paper) suggests that a focus on agricultural development to reduce poverty is likely to be most appropriate in circumstances where the domestic market is less well integrated into global trade; a higher proportion of increased income is likely to be spent locally and on locally-produced goods and services; there is an enabling environment and capacity in the local non-farm economy to increase production in response to increased demand; where small-scale farmers have the capacity to either increase either the scale of production or the value of the produce
- ²⁸ Barratt, C. (2008), "Smallholder market participation: Concepts and evidence from eastern and southern Africa" and Jayne et al (2010), "Principal Challenges Confronting Smallholder Agriculture in sub-Saharan Africa"
- ²⁹ Dercon, S. (2009), Rural Poverty: Old Challenges in New Contexts, *The World Bank Research Observer*, vol. 24, no. 1
- ³⁰ From Dorward (2009), Integrating contested aspirations, processes and policy: Development as hanging in, stepping up and stepping out *Dev. Policy Rev.*, 27 (2009), pp. 131–146
- ³¹ This model is based on Dorward, A. Anderson, S., Nava Bernal, Y., Sánchez Vera, E., Rushton, J., Pattison, J. and Paz, R. (2009), Hanging in, stepping up and stepping out: livelihood aspirations and strategies of the poor, *Development in Practice*, 19:2, 240–247.
- ³² These categories draw on evidence on farm size distribution and smallholder market participation cited in: Barratt, C. (2008), "Smallholder market participation: Concepts and evidence from eastern and southern Africa", *Food Policy* 33 (p299–317); Hazell, P., Poulton, C., Wiggins, S. and Dorward, A. (2010), "The Future of Small Farms: Trajectories and Policy Priorities", *World Development* Vol. 38, No. 10, pp. 1349–1361; Berdegue, J.A. and R. Fuentealba (2011), *Latin America: The State of Smallholders in Agriculture*. Conference on New Directions for Smallholder Agriculture, 24-25 January 2011, Rome, IFAD HQ. IFAD; and OECD/DAC (2006) *Promoting Pro-Poor Growth: Agriculture*. DAC Guidelines and Reference Series, a DAC reference document. Paris: OECD. See also Annex 2 data on land holdings.
- ³³ Large farms should also not compete with the productive assets of poor people unless the latter consent to the transfer. In particular, land is a fundamental issue when it comes to risks associated with domestic and foreign investments in agriculture. DFID promotes compliance with the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGT).
- ³⁴ Even allowing for the fact that productivity growth on commercial farms should raise demand for wage-labour and drive demand for goods and services in the rural non-farm economy benefiting other segments.
- ³⁵ World Bank (2013) *Growing Africa: Unlocking the Potential of Agribusiness*
- ³⁶ S. Wiggins & S. Keats (2015): *Topic Guide, Stepping-out guide to agriculture*
- ³⁷ *Grow Africa* (2013), Annual report
- ³⁸ On the positive side, there is good evidence, that land tenure security boosts productive and conservational activities which in the longer term improves food and nutrition security and reduces poverty, in particular when women are included in the registration or title.
- ³⁹ Without confidence in food markets to meet food security needs subsistence farmers are unlikely to relinquish land even if they have sufficient off-farm income.
- ⁴⁰ The ratio of GDP generated by agribusiness compared to that generated by primary agricultural production increased from 0.57 in a sample of nine 'agriculture-based' countries in Sub-Saharan Africa, to 1.98 in eleven 'transforming' countries mainly in Asia, to 3.32 in twelve urbanised economies, highlighting the important contribution of agro-industry to value-added as part of economic transformations. Source: Wiggins, S. and Roepstorff, T. M. (2011), *New global realities governing agribusiness* (in Yumkella et al (2011) *Agribusiness for Africa's Prosperity*, UNIDO)
- ⁴¹ Barratt, C. (2008), "Smallholder market participation: Concepts and evidence from eastern and southern Africa"
- ⁴² In the European Union, the Agricultural Census 2010 (Eurostat, 2012) surveyed close to 12 million farms in the EU-27. Of these, 49 percent had less than 2 ha and 67 percent less than 5 hectares. In the US, farm size is defined by "gross product": the

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- number of 'small farms', with total sales of less than USD250,000 was 1,995,133 farms, corresponding to 91 percent of all farms, in the 2007 Agricultural Census (USDA, 2007).
- ⁴³ See, for example, recent research from a number of African countries that suggest that optimal productivity may be achieved by smaller to medium sized farming businesses around 20ha. For example, T.S. Jayne, D. Mather, E. Mghenyi (2010), *Principal Challenges Confronting Smallholder Agriculture in Sub-Saharan Africa*, *World Development* Vol. 38, No. 10, pp. 1384–1398
- Masters, W., A. Djurfeldt, C. De Haan, P. Hazell, T.S. Jayne, M. Jirstrom, T. Reardon (2013), *Urbanization and farm size in Asia and Africa: Implications for food security and agricultural research*. *Global Food Security*, 2 (2013), 156–165,
- N. Sitko, T.S. Jayne (2014), *Structural transformation or elite land capture? The growth of 'emergent' farmers in Zambia*, *Food Policy* Vol 48, pp.194-202.
- ⁴⁴ E.g. Hazell, P., Poulton, C., Wiggins, S. and Dorward, A. (2010), "The Future of Small Farms: Trajectories and Policy Priorities", *World Development* Vol. 38, No. 10, pp. 1349–1361); [Reardon et al on non-land assets importance in transforming value chains]
- ⁴⁵ Harris, D. and Orr, A. (2013), *Is rainfed agriculture really a pathway from poverty? Agricultural Systems* 123, 84–96.
- ⁴⁶ Reardon (2013), "Asia Agrifood System's 5 Linked Transformations: Implications for Agricultural Research and Development Strategies". The profitability of tiny commercial farms on <0.5 ha for example in China demonstrates that (farm) size alone is not a good predictor of commercial potential Profitability of tiny farms in China.
- ⁴⁷ This distinction is based on Reardon (2013), "Asia Agrifood System's 5 Linked Transformations: Implications for Agricultural Research and Development Strategies". Largely in Asia, but is also relevant to Africa. While the speed and depth of agrifood transformations varies significantly across different regions they tend to include similar drivers and processes including: rising urban food demand, significant foreign and domestic investment in production and processing, the spread of supermarkets and associated restructuring of food value chains.
- ⁴⁸ Reardon, Thomas et.al. (2012), *The quiet revolution in staple food value chains: Enter the dragon, the elephant and the tiger*. Mandaluyong City, Philippines: Asian Development Bank, 2012.
- ⁴⁹ Mirza and Speller, *Field Surveys of the PRAI with investors and local communities*, Inter-Agency Working Group: FAO, IFAD, UNCTAD and the World Bank). See also for example World Bank (2015): *Using national statistics to increase transparency of large land acquisition : evidence from Ethiopia*
- ⁵⁰ The export markets for some of these crops in theory create more durable demand and stable prices but in practice may be subject to significant price volatility, particularly for traditional commodities such as coffee and cotton.
- ⁵¹ While high transaction costs and risks of sourcing from smallholders in general mean agribusinesses prefer sourcing from larger farms, there are many examples of such firms sourcing from smallholders even where they have a choice pointing to a more complex set of factors determining smallholder access to such chains and also a potential role for public interventions to influence opportunities Again Reardon and Barratt et al and paper in series
- ⁵² Harris, D. and Orr, A. (2013), *Is rainfed agriculture really a pathway from poverty? Agricultural Systems* 123, 84–96.
- ⁵³ Mirza and Speller, *Field Surveys of the PRAI with investors and local communities*, Inter-Agency Working Group: FAO, IFAD, UNCTAD and the World Bank), *Rising Global Interest in Farmland*, World Bank (2011) and FAO (2014), *Impacts of Foreign Agricultural Investment on Developing Countries: Evidence from case studies*
- ⁵⁴ DFID (2014), *Can agriculture interventions promote nutrition?*
- ⁵⁵ For example, prioritising investment in the impact pathway from household (subsistence) food production to consumption needs to be based on a sound assessment of the cost of raising agricultural productivity at the household level (and possibly also in low potential 'hinterland' areas) versus improving access to nutritious food through investments in commercial agriculture and market systems (and, if necessary in cash transfers).
- ⁵⁶ Keats, S. and Wiggins, S. (2014) *Future diets: Implications for agriculture and food prices*, ODI.
- ⁵⁷ Knox, J.W., Hess, T.M., Daccache, A. and Perez Ortola, M. (2011), "What are the projected impacts of climate change on food crop productivity in Africa and S Asia? DFID Systematic Review, DFID, London.
- ⁵⁸ DFID's *Agriculture and growth evidence paper series* (2014), *Agriculture and Growth*
- ⁵⁹ See for example Ali et al. (2015), *Investigating the Gender Gap in Agricultural Productivity, evidence from Uganda*, World Bank Research paper
- ⁶⁰ ISPC (2012) *Synthesis Report for the CGIAR Foresight Study on Trends in Urbanization and Farm Size in Developing Countries: Implications for Agricultural Research* source ISPC report.
- ⁶¹ For example, a sugar manufacturer investing in a large mill or a tea company investing in a tea processing factors will need to guarantee a secure supply of sugar cane and tea to make the investment in processing equipment worthwhile. To minimise the risk they investor will prefer to grow as much as possible on their own plantation but limited access to land or high transaction costs in managing labour may favour a mixed model, including a plantation and outgrowers.

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