

# Smallholder Data: What information does the private sector collect about smallholders, how can it be improved, and how is it relevant to the SDGs

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## Key Findings:

- Through their impact on smallholders' livelihoods, many agribusinesses are contributing to SDGs 1-2, but this is often not being captured at the company or national level.
- 20 percent of the companies sampled collected data on the poverty status or income of the farmers they work with, while half of financial intermediaries did so. In contrast, 80% of companies held data on output levels or product quality.
- Many firms lack knowledge of best practice in data collection, reducing data quality.
- 40 percent of companies sampled are not analysing the smallholder data they collect.
- Perceived commercial value is a key motivator for firm data collection, and this is affected by the characteristics of value chains. Value chains with more direct, longer-term relationships with smallholders create more incentives for SDG-relevant data collection.
- Firms also collect developmentally valuable smallholder data when they are required to do so as part of 'accountability relationships' with creditors, government or donor agencies.
- Innovation in data collection methods, such as the use of mobile-based tools, could improve the commercial value, quantity and quality of data collected about smallholders.

## Recommendations for DfID:

### For businesses which already have reasonable links to their smallholder suppliers:

- Create an M&E innovation fund, based on value chain analysis and literature (e.g. the DfID funded *Capturing the Gains* research consortium) to demonstrate the commercial value of closer, longer-term relationships between agribusinesses and smallholders.
- Support innovation and disseminate best practice on how technology can be used to cheaply and easily collect smallholder data to improve commercial operations.

### For businesses with weaker links to their smallholder suppliers:

- Develop a standard 'lean' template for smallholder data collection. This should be aligned with the SDGs, and focus on income and productivity to encourage business participation, as they already see commercial value in this kind of information.
- Encourage more and better smallholder data collection by agribusinesses, through relationships with buyers, certification bodies, and investors.

## Other recommendations:

- Encourage DfID and development finance institutions (DFIs) such as CDC to invest in agribusinesses and financial institutions in value chains that are important for smallholders, using reporting requirements about smallholders as a pre-condition for investment.
- Encourage national governments to develop more sophisticated smallholder strategies, such as national data roadmaps, addressing legal compliance for specific markets, with clear targets and reporting requirements with regards to data collection.

## Introduction and overview

Smallholders are the backbone of agricultural production in developing countries. They supply 70 percent of Africa’s food,<sup>i</sup> and smallholder farming supports the livelihoods of 500 million households around the world. This summary presents findings from a DFID research funded project, covering the data that is currently collected by agribusinesses and their financiers about smallholders across six value chains in three countries: Ethiopia, Kenya and Malawi.

Eighteen actors completed questionnaires or engaged in interviews, with six of these selected for in-depth case studies in the field (see Table 1).<sup>iiiii</sup>

Our main findings are that the private enterprises in this study appear to be contributing to SDG 1 and 2 through their influence on smallholders’ livelihoods, though this information is not being captured systematically, and its collection is motivated by other concerns. Agribusinesses are most interested in data on output and productivity, while financial institutions focus on creditworthiness. Both are concerned with information they see as being commercially relevant. In some cases, private actors collect a richer set of information about smallholders, which is also driven by a commercial rationale. The key difference is what is considered to be valuable. An important question that is addressed in this research, therefore, is why some private actors see value in collecting developmentally valuable data about smallholders, while many do not.



*three mango trees, one of 6,000 smallholders that Malawi Mangoes engages with*

<b>Table 1: Companies selected for case study</b>		
<i>Name</i>	<i>Value Chain</i>	<i>Role</i>
Pittards	Leather	Value Chain Actor
Meklit Microfinance S.C	Leather/Livestock	Supporting Financial Intermediary
Malawi Mangoes	Mangoes	Value Chain Actor
Lujeri Tea Estate	Tea	Value Chain Actor
New KCC	Dairy	Value Chain Actor
K-Lift	Dairy	Supporting Financial Intermediary

We find two main reasons. First, value chains have different characteristics, which affect the extent to which smallholder data are seen as commercially important. Generally, private actors with direct, long-term relationship with smallholders are more likely to see it is commercially useful to collect SDG-relevant information. Second, firms and financial institutions have ‘accountability relationships’ with other actors, which require them to report on particular issues, including smallholders in some cases.

As well as the nature of the data that is collected, we also examined its quality. Our main finding is that quality is often low. This also relates to the two drivers described above. If firms do not see it as commercially important to collect smallholder data, or face other incentives to do so, they are unlikely to devote sufficient time and resources to these tasks. Separately, capacity and skills in data collection and use was often limited, and many of the private actors we engaged with simply did not have the resources to invest in this area even when they wished to do so.

Our recommendations address these issues. We identify examples where private actors have developed initiatives that increase the commercial relevance of smallholder data, think about how replicable these approaches are, and what could be done to encourage this. We also consider how existing accountability relationships could be strengthened, and new ones established, to incentivise the collection of SDG-relevant smallholder data. Finally, issues of data quality are also addressed.

### **Why is this important?**

Achieving the SDGs is inextricably linked to smallholders. If SDG 1 (no poverty), SDG 2 (no hunger) and SDG 8 (decent work and economic growth) are to be met, the living standards of smallholders must be sharply improved. There are 200 million smallholders who engage, in various ways, with agribusinesses in commercial value chains<sup>iv</sup>. These businesses are a key source of income and other support for smallholders. The nature of these relationships thus significantly affects smallholder livelihoods. Indeed, we find that the fate of these businesses and smallholders go hand in hand. In the longer-term, one is unlikely to succeed without the other.



*View from Lujeri Tea Estate in Malawi*

It is necessary to understand what progress smallholders are making towards the SDGs before interventions can be designed to improve the rate of progress. The starting point is information. The businesses that work with smallholder are uniquely well placed to collect this, but little is known about what they collect now, and how relevant this is for the SDGs. Similarly, knowledge about why information is collected (or not) is limited.

The research summarised here begins to address these issues. As part of this project, we selected relevant value chains (in Ethiopia – leather and meat processing; in Kenya, dairy and maize; and in Malawi – mangoes and tea) and looked at what smallholder data is collected by the companies (and financial intermediaries) that operate within them. After examining how informative this is – and could be – for different SDGs, we explored the drivers and obstacles to data collection, and identified examples of best practice. Finally, we considered what agencies such as DFID could do to help replicate best practice, and touched on wider interventions to encourage the collection of SDG-relevant smallholder data.

The remainder of this note is structured as follows. Part 1 links smallholder data to the SDGs, while part 2 examines the data that is currently being collected. Part 3 looks at the drivers of smallholder data collection, while part 4 presents examples from the research of private sector innovations that have led to more information being generated. Part 5 discusses what donors and others could do to support these types of innovation, as well as other measures that could encourage the collection of more SDG-relevant smallholder data in the future. The methodology and approach to the research is described in the Annex.

## 1. Smallholder data alignment to the SDGs

A key motivation of this research is to understand the relevance for the SDGs of smallholder data that is collected now. This section considers this question, explores how current data could be better used, and then identifies the two most important determinants of smallholder data collection.

Many companies collect productivity data (such as yields), and data on payments to smallholders. Although quite limited, this is relevant for a number of SDGs, and this relevance could be increased with quite small changes in some instances. Table 2 links SDG goals and indicators to current data (this is developed further in part 2), and describes what would be needed to increase relevance.

<b>Table 2: Alignment of smallholder data with SDG goals and indicators</b>			
<i>SDG goal /indicator</i>	<i>SDG Description</i>	<i>Relevance of data currently being collected by the surveyed companies</i>	<i>Changes needed to increase the relevance of current data</i>
1.2.1	Demonstrating incomes leading to (partial or full) poverty alleviation	<b>High</b> - Data collected on yields and payments (wages) to smallholders	Baseline (poverty and income) and temporal analysis to demonstrate changes. Including % attributed to company
2.1.2	Prevalence of moderate or severe food insecurity, based on the Food Insecurity Experience Scale (FIES)	<b>Low</b> – FIES does not match current production data	FIES survey module incorporated in current data collection of smallholders
2.3.1	Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size	<b>High</b> – Data collected includes production volumes provided to firms	Baseline and temporal analysis to demonstrate production changes. Estimates of personal/family/other selling required. <sup>v</sup>
2.3.2	Average income of small-scale food producers, by sex and indigenous status	<b>High</b> – Data collected on yields and disbursements (wages) to smallholders	Baseline and temporal analysis to demonstrate income changes, broken down by gender/ethnicity. Including % income attributed to company
2.4.1	Proportion of agricultural area under productive and sustainable agriculture	<b>Medium</b> – Sub-indicators include: economic (labour and land productivity); environmental (soil, water use, etc.); and social (poverty, farm/household resilience)	For economic and social sub indicators see 1.2.1 and 2.3.1. Generating data on environmental indicators additional, but analysis ongoing in some cases (e.g. Lujeri Tea Estate conducting soil analysis)
10.1.1	Growth rates of household expenditure or income per capita among the bottom 40% of the population	<b>High</b> - Data collected on yields and disbursements (wages) to smallholders	See goal 1.2.1. Based on assumption that smallholders are likely to be in the bottom 40% of the total population
12.3.1	Global food loss index (losses of ag. commodities from the production to the retail level)	<b>Medium</b> – Smallholder yield expectations and final production volumes	If yield expectations are available, difference between expected and delivered products could be useful
17.11.1	Developing countries' and least developed countries' share of global exports	<b>High</b> – Data on export volumes and incomes of the firm of relevance.	Potentially important for understanding the export contribution of smallholder-supplied agribusiness.

Many of these changes would not require a major shift from what companies are already doing. Even so, there needs to be a clear reason to make these changes. If the collection of more and better SDG-relevant data is to be encouraged, the rationale needs to be stronger still.

In the course of this research, large differences were found in how private sector actors approach smallholder data collection. Some of this is firm-specific no doubt, reflecting particular perceptions of the value of undertaking these sorts of exercises. There is more going on though. Our research strongly suggests that two sets of drivers are exerting a strong influence on how private sector actors behave in this regard.

We find that a commercial rationale to collect SDG-relevant smallholder data is more likely to be collected in value chains with particular characteristics. As well as commercial drivers, private actors collect data when they have some kind of ‘accountability relationship’ that requires them to do so.

## 2. What information is being collected on smallholders?

Our answer to this question is threefold. First, we find that data is only collected when it is seen as commercially important, though what this means varies considerably. Second, the quality of information is of generally low quality. Third, a significant amount of useful qualitative information is held by the actors we engaged with, but this is often not systematically collected or used.

### 2.1. Commercial concerns drive approaches to data

Of the companies we engaged with, only 20 percent captured data on the poverty status or income of the farmers they work with, while half of financial intermediaries did so. In contrast, 80 percent of companies held production data on output, product quality, or area cultivated.

The rationale is simple: firms collect information they see as relevant to their business, and in many cases this does not conclude development-type data. For instance, in the meat sector in Ethiopia, private actors noted the difficulty of even identifying the number of farmers. This was also the case in the maize sector in Kenya, where no data was collected on smallholders. Instead efforts focused on variables such as volumes produced, and the proportions sourced from intermediaries. This is closely related to the type of out-grower scheme that is in place in the business.<sup>vi</sup>

Financial institutions that lend to smallholders are similarly concerned with the bottom-line, but for them variables such as poverty and income are important drivers of creditworthiness and the ability to service loans. Financial institutions that lend to value chain firms, are interested in the financial performance of these firms, and do not request smallholder-level data.

The following examples describe companies that are largely focused on production data, as well as those that are collecting more smallholder-specific data than is the norm, and are doing so because they believe it is in their commercial interests to do so.

**Malawi Mangoes** is the country’s main privately owned mango exporter, founded in 2009. As well as three nurseries, the firm purchases mangoes directly from around 5,000 smallholders within a 55km radius of their factory. Malawi Mangoes has received financing from the Global Food and Agriculture Security Fund (GAFSP), the IFC and (recently) the European commission. Its chief buyer is Coca Cola, but it also



*Factory Manager at Malawi Mangoes with their most recent collection*



produces for companies such as Ceres and Friesland Campina.

The company collects data on smallholders through 24 community field assistants (CFAs), with responsibility for 200 smallholders each. CFAs provide support services (e.g. on grafting trees, helping to improve productivity), and collects data down to the level of individual trees. Data on tree numbers and size is used to estimate yields, which is fed up to senior management to plan production volumes. The company has also engaged in various initiatives to increase yields such as a seedling programme. This met with limited success, however, and was stopped in 2016 due to cost considerations (60,000 seeds were distributed, but only 5% of them took).

Although Malawi Mangoes now focuses on output data, the company previously held a baseline dataset with information on size of land holding, crops grown, household status (smallholder incomes and poverty levels) from inception in 2009-2013. Unfortunately, following a dispute with the company managing this data in 2013 over the cost of the subscription based software, the dataset was lost. Due to the additional cost of obtaining this kind of data, the perceived lack of commercial benefit in doing so, tightened financial circumstances, and wider commercial pressures, the company decided to focus on collecting production data from this point. The original directors also left the firm in 2016, and the focus may have shifted as a result.

**Kenya Livestock Finance Trust (K-LIFT)** (est. 2009) provides loans to the livestock sector in Kenya, 80 percent of which go to small-scale dairy farmers. 5,000 loans have been approved, with an average value of 100,000 KES (around £700). Annual interest rates are 18 percent, compared to an average of 21-23 percent from comparable providers. K-LIFT is owned by the Kenya Veterinary Association through four trustees and operates a not for profit model.



*Dr. Stephen Kinyi - K-LIFT CEO and Secretary to the Board*

The Trust collects data on smallholder creditworthiness to inform loan decisions. This includes the profile of the applicant (e.g. education, rural or urban), experience in keeping livestock, farm ownership status, staff (number of employees, salary and allowances), income and expenditure. K-LIFT has signed memorandums of understanding with a number of large dairy cooperatives, whose members are K-LIFT's main recipients of loans. The cooperatives assist with loan applications, verify the data provided, and sometimes act as a third party guarantors, when smallholders have too little collateral. Collateral accepted by K-LIFT includes title deeds, evidence of a mortgage on movable property, shares, life insurance policies, livestock or group guarantees.

While this information is potentially very useful from a development perspective, it is currently used for internal decision-making purposes only. The development potential of the data could also be improved relatively easily. Most notably, there is a lack of follow-up with smallholders during and after the loan period, so what they have done with their loans, and the development impact this has had, is not known. This highlights the fact that commercial considerations are the key driver of both data collection and use. A financial institution collects data on loan repayment for commercial reasons, and we can infer that success in this regard is a sign that the finance has been used productively. Beyond this, however, there is little incentive for the institutions to know more.

While this is certainly true of a straight commercial financiers, the situation here is more complex. K-LIFTs slogan is “Lifting Kenyans from poverty through livestock”. Understanding if this is in fact happening, and what the most important drivers are, would help them to validate this claim.

**Lujeri Tea Estate (LTE)** is the second largest producer of tea in Malawi (after Eastern Produce), with a 30 percent market share, and a 3,200 Hectares estate near Mount Mulanje. As well as its own estates, LTE works with smallholder associations and out-growers. It is one of the largest firms in Malawi that do this, with 9,000 of Malawi’s 17,000 smallholder tea producers. LTE is owned by PGI Group Ltd, a UK based company that invests in agribusiness and renewable energy in Malawi, Zambia and Zimbabwe.



*Fael Makina, one of LTE’s smallholder farmers*

LTE has invested significantly in smallholder data collection, collecting data on production yields, coverage of the plant population, as well as GPS mapping of each smallholder plot. Their database also includes important data such as land ownership rights. The investments by LTE have a number of aims: (i) to forecast future production (it takes a tree 8 years to mature); (ii) to understand how and where productivity can be increased; and (iii) to ensure loans to increase productivity are used well. Through questionnaires and visits, LTE collects data on plant coverage on smallholder plots. When combined with the other data it holds, this enables them to identify gaps in plant coverage, and intervene to address these.

Smallholders produce around 50 percent less per hectare than LTE does on its own estates, though this is distorted by the use of different tea plants. The company therefore has a strong commercial incentive to increase the productivity of the smallholders it works. It cannot just increase the size of the estate, as it is unable to expand in this way following changes in Malawian legislation on the purchases of land freehold. The data it collects is key to increasing smallholder productivity.

## **2.2. Data quality and use is generally low**

The questionnaires and case studies revealed a lack of knowledge of best practice in data collection methods, and often low quality of the data that is collected. In the case studies, we found multiple datasets with circular references, significant data gaps and inconsistent units. The research found limited knowledge of best practice data collection procedures, such as the DCED Standards or IRIS indicators. While 11 percent of actors used some kind of industry standards, more than half applied their own internal standards to data collection, with varying degrees of quality and precision.

Outside information on output, most of the smallholder-relevant data collected concerned general trends rather than individuals. Also, where developmentally informative data was collected on smallholders, this was generally on an ad hoc basis as particular needs arose, rather than part of a regular process. Furthermore, even where smallholder data exists, it is often not used. Nearly 40 percent of actors are not analysing the data they collect with respect to smallholders in any way.<sup>vii</sup>

The examples below describe some of the contextual features that lead to poor data quality, as well as why data is often generic rather than smallholder-specific.

**Pittards** is a UK leather producer, which has had operations in Ethiopia since 2005, and now has five factories in the country. Pittards purchases raw skins and hides for leather production. Just less than half come from abattoirs, with the remainder sourced from intermediaries. Pittards therefore has little interaction with the smallholders who own the livestock that supply its inputs. The company

has had trouble obtaining the requisite quality and quantity of hides and skins. Its tannery operates at 80 percent capacity because of a lack of quality raw materials. As a result, it is considering setting up its own collection facilities in regions known for high quality hides and skins. The company is also experimenting with other initiatives to address this issue, as described later in this note.

Pittards understands its market primarily by tracking regional stocks and prices of hides and skins. Whilst they do not get down to the smallholder level, Pittards does produce data at regular intervals. This includes the number of skins processed and finished, as well as features such as the quantity and export value of skins produced. The company also captures data on the number of permanent and temporary jobs created (gender specific), as well as environmental impacts.

*“The data Pittards collects are not directly on farmers or the income they generate as a result of supplying hides and skins. That said, Pittards tracks regional stocks and pricing, but it does not go into any greater depth regarding quality, as it is difficult to ensure quality until this is unravelled at the tannery. Typically, Pittards collects data on the number of pieces of hides and skins received by its tannery and the corresponding prices.”  
(Pittards Case Study)*

While regional stocks and prices may provide useful information, the fact that the quality of hides and skins is so low suggests that problems further down the supply chain need to be addressed. Understanding what is happening at the smallholder level is potentially a crucial part of this story.

As well as the more detailed case-studies, the survey of participating firms and financial institutions revealed a number of issues with respect to data quality, which are summarised below.

### **Relevant comments from the survey**

Just over half of the private sector actors we engaged had some basic form of data collection protocol, such as an internal standard, or a specific person whose role it is to collect data, though many had no mechanism for ensuring data quality at the collection phase. This was noted as an important capacity issue in a number of cases, where respondents were unhappy with their procedures. Even in cases with the most advanced approaches to data collection and management, basic data issues were found.

As well as problems with capacity and skills, an issue affecting data quality – both in terms of actual and potential data collection – is the practical constraints to doing this accurately. While this may be easier for production and payment data, issues such as plant coverage (requiring GPS tracking or people on the ground) can be a lot more difficult to track accurately and cost-effectively. Many of the comments in the first stage of the research stressed the difficulties involved in obtaining data on smallholders, even if there was interest in doing so. The quote below explains the issues well:

*“We do not collect information in areas cultivated by smallholders, as fragmentation of land, land tenure and ownership are all too complex”.* (Interview with Family Bank, Kenya)

As described above, data is only likely to be collected where there are perceived commercial reasons for doing so. The fact that this could also be logistically difficult raises the threshold. Overcoming these practical challenges would be expensive and time-consuming; the commercial rationale would therefore have to be clear and strong.

### **2.3. Qualitative information can be very insightful**



Not all useful information is collected systematically or quantified. The case studies show that a significant amount of qualitative information is collected on smallholders, particularly in value chains with long-term relationships between buying firms and smallholders, such as the tea industry.

Where information takes the form of feedback from smallholders (such as in the tea and mango value chains), it is an important – or potentially important – way in which accountability can be promoted between buying firms and the smallholders they work with. As well as improving smallholder welfare, maintaining these channels of communication can also be to the advantage of the firms themselves, as described in the examples below.

### **Pittards engagement with the collectors and traders.**

Pittards purchases more than half of its raw material from collectors and traders in the hides and skins market, where there is often a marked lack of quality. As a result, the company cannot operate its tanneries at full capacity.

Interviews with Pittards and other actors in the value chain found that at least three large collectors (contrary to the law) were hoarding hundreds of thousands of pieces of hides and skins. One large collector kept more than 200,000 pieces for months, reportedly because of a lack of buyers downstream in the value chain. Another collector apparently held 20 million birr (~£500,000) worth of hides and skins for months. Like the tanners, the collectors we talked to were in a dilemma. They were unwilling to sell to tanneries, describing them as *'a few monopolies who literally force us to sell at giveaway prices'*. Nor do they feel the export tax is reasonable: *'we cannot export it because of the 150% export tax on raw hides and skins'*. As a result, a large quantity of hides and skins is either not collected, or loses quality due to poor storage facilities and handling, becoming an environmental hazard to communities living around collectors' storage sites.



Collectors' wet and dried skins kept in hazardous conditions in Addis Ababa



This has implications for both firms and smallholders. Pittards has adopted a strategy of avoiding Addis-based collectors and is considering setting up its own collection stations, at considerable cost. Smallholders suffer from this stand-off, which drives down demand and suppresses prices. Anecdotal evidence from traders suggest that a fine sheep's skin used to fetch 100birr in 2015-2016, but had dropped to 15-30 birr in 2017.<sup>viii</sup>

### **Lujeri Tea Estates – positive engagement with smallholders**

Lujeri Tea Estates' sustained work with smallholders, and the smallholder out-growers association Sukambizi, has led to good working relationships, which benefit both the firm and the smallholders themselves.

LTE increased its purchasing from smallholders after 2008, following the collapse of the Smallholder Tea Authority (STA).



This was also the point that Sainsbury's moved into Fairtrade, increasing the potential commercial benefits of this form of production. Sukambizi's 9,000 smallholders are organised into 24 administrative blocks, each with a sub-committee. There is a central committee for Sukambizi, as well as a committee concerned with premium tea products.

There are also Tea Clubs of 12-40 people, which collect information on the circumstances of each farmer, such as the status of their crops. This is fed up to LTE through the various committees, providing a picture of what is happening on the ground. As a result, LTE obtains reliable data on crop production enabling it to plan appropriately. About 50 percent of all smallholder tea was sold as Fairtrade in 2016. However, in 2017 Sainsbury's withdrew from Fairtrade, and sales are expected to fall to around a third of production in 2018.<sup>ix</sup>

*Map of LTE smallholder block boundaries, based by areas*

Prior to the introduction of measures such as these, there was a lot of stealing and encroachment on the LTE estate. Community relationships have since improved significantly. As described during case study interviews: *"chiefs will now bring back stolen materials"* and *"the company used to employ a lot of watchman, since this relationship has started, we have been able to reduce that number by 40%, our relationship with the community has really improved."*

Access to this kind of information, combined with the quantitative data collected by LTE, has also helped inform a number of CSR initiatives. Examples include:

1. Development of infrastructure, such as schools/blocks, teachers' houses, bridges and roads (into smallholder areas).
2. Development of a smallholder family private clinic, where medical costs are covered by LTE.
3. Supply of 500,000 plants a year to ensure that smallholders grow drought resistant tea plants. The tea plants are supplied from LTE's nurseries and a Sukambizi run nursery, funded by Sainsbury's, Harris Freeman Foundation, LTE and now also through Fairtrade premiums.
4. Smallholder training (e.g. employed outgrower managers) to assist farmers.
5. Development of a lead farmer system, where selected farmers are trained and then used to teach others.
6. Provision of training materials in local language
7. Set up all smallholders with local bank accounts to facilitate easy payment.

Developing strong channels of communication with smallholders has enabled LTE to understand their needs, and also see more clearly that helping to address these is in their commercial interest. All of the initiatives above are beneficial to smallholders, but they are also positive for LTE – only point 3 appears to have been funded from external sources. As well as specific things like ensuring the best varieties of tea are grown, and smallholders have the knowledge and skills they need, providing health services supports a healthy workforce, while infrastructure facilitates the transportation of goods to market. None of this would be possible without the flows of qualitative information that have been described.

### **3. What are the key determinants of what data is collected on smallholders?**

#### **3.1. Value Chain Characteristics**

Our findings are consistent with the value chains literature<sup>x</sup>. For example, this literature describes a mutual dependence between retailer and supplier, with high costs to both of switching to new partnerships. In circumstances where there is a dominant buyer, suppliers find it difficult to switch to new buyers, and where the lead firm in a value chain is concerned with development impacts (for

commercial and/or values-based reasons), it is more likely that suppliers along the chain will capture development impact information, than in is the case in more fragmented value chains. Similarly, vertically integrated firms (with the same ownership for all levels of the chain) will also collect data about development impacts, if there are commercial or values-based drivers, though this is less relevant for agriculture, with few vertically integrated value chains.

In this section, we describe the value chain characteristics that we have found which appear to positively affect incentives to collect data, illustrating each with examples drawn from the research.

*(i) The number of potential smallholder producers is not too large, and supply and demand conditions are relatively tight*

As we have seen above, collecting data on large numbers of widely dispersed smallholders is logistically very challenging. There is another reason why data may not be collected in these types of value chain though. If it is potentially possible to buy from a very large number of smallholders, as in the maize sector, buyers have little incentive to develop long term relationships. If they are unhappy with the products supplied, they can simply switch to another group. This is particularly likely where the product can be stored for a lengthy period of time, which reduces time and distance constraints. In contrast, where production is limited to a relatively small group of farmers, takes longer to reach maturity, or is perishable, there is less scope to switch smallholder suppliers. This creates incentives to improve the performance of existing smallholders, which requires data collection. The tea sector is a good example of this.

A related factor is supply and demand conditions in the market concerned. Where demand for a product is high relative to supply, buyers cannot easily shop around, creating more incentives for them to invest in increasing the productivity of smallholders they already work with. This requires relevant data on productivity, and the drivers of productivity, to be collected.

These findings confirm the mutual dependence found in the value chains literature.

*(ii) Buyers are not distanced from smallholders by many intermediaries*

Practical challenges to collecting smallholder data are created where buyers do not interact directly with them, but do so through intermediaries. As well as these difficulties, buyers also have less incentive to request information on smallholders, as what matters is the product supplied by the intermediary. In these circumstances, intermediaries are in a better position to collect smallholder data, particularly on product quality. They may well do so, but this information is commercially very valuable to them, as their ability to source and supply high quality products is what gives them a competitive advantage. As a result, they are unlikely to want to share this information, which may also be tacit in nature. The leather sector in Ethiopia is a good example of this characteristic.

Another example from the research is found in a large Kenyan maize processor. The firm has 20 large suppliers, and around 1,000 medium scale suppliers (who take a lot of management themselves), each with an indeterminate number of smallholders. While some comparison and trend analysis is conducted at the trader level, collecting information on smallholders is not practically feasible.

*(iii) Value chain actors are able to devote sufficient resources to these activities*

As cited by many participants in the research, agribusinesses run on tight margins. For smaller firms in particular, it can be hard to find the resources to invest in smallholder data collection even if they wish to. In Malawi, for example, the Satemwa Tea Estate has neither the size nor resources of LTE to collect smallholder data as robustly as it would like. These problems are exacerbated by the power

crisis currently in Malawi. Having to use diesel generators can add up to 7 percent to the cost of tea production. In Ethiopia, the small microfinance institution, CUMO, previously commissioned social performance assessments through the Micro-Credit Ratings International Limited (M-CRIL), but has not been able to do so for a decade due to cost considerations.

*(iv) Products vary widely in quality*

If products are standardised in terms of quality, there is little to be gained from investing to produce higher quality goods. The maize sector is a good example. In contrast, where quality varies, and this is reflected in price premiums, such investments can make sense. Lujeri Tea Estate in Malawi invests significantly to ensure the smallholders it works with produce tea of premium quality. As we have seen, this leads directly to the collection of SDG-relevant data, both quantitatively and qualitatively.

*(v) Consumers are concerned with smallholder welfare.*

Commercial concerns are paramount for agribusinesses operating in competitive markets. If consumers are concerned with smallholder welfare, however, a commercial rationale can be generated. For example, Malawi Mangoes has been weighing the benefits of expanding its accreditation from the Rainforest Alliance and GlobalGap. The company has certification for their main estates, but not for smallholder production, and changing this would result in significant amounts of rich new smallholder data being collected. A key factor is that buyers from different markets do not have the same requirements for such standards. This is important for Coca Cola and countries like the UK, but not for growth markets for fresh mangoes in the Middle East. Malawi Mangos is expanding its exports to the Middle East and interviewees doubted the commercial benefit that would come from certification, but were clear on the costs it would entail. Approaches to smallholder data, therefore, are strongly influenced by the markets firms seek to export to, and the attitudes of consumers in those markets.

### **3.2. Accountability relationships**

Private sector actors collect data for a reason. This may be commercial, and as we have seen smallholder data is more likely to be seen as commercially relevant in value chains with certain characteristics, particularly where strong relationships exist between buyers and smallholders that persist over time. A second factor that can create incentives to collect data of various forms is relationships with other actors that create obligations – i.e. ‘accountability relationships’.

Who are these actors? Firms have obligations to owners and creditors, but also to buyers, business associations, and government agencies. Others may also have obligations to donors or certification bodies of various kinds. As we have seen in this research, some can also have obligations to smallholder groups such as cooperatives. Any or all of these may require regular reporting, which in turn necessitates the collection of data, including potentially with respect to smallholders. It is recognised that the strength of this relationship depends on where consumer pressure comes from, if agribusinesses are selling business to business, there is less direct interaction with the consumer, and less consumer pressure for data.

Below we present some findings and examples of these accountability relationships, and how they may affect incentives to collect data.

**Central governments.** While central governments have the greatest potential influence on incentives, the research found very little evidence that this is being used. In the leather sector in Ethiopia, the government does require firms to provide data as part of its Growth Transformation

Plan, but this concerns export performance. Similar findings emerged in the Kenyan dairy sector, and tea in Malawi, where there was little or no central government interest in smallholders.

Malawi Mangoes saw high-level political support at the time of its launch, and a number of visits from Presidents of Malawi have taken place since. This has not translated into ongoing government interest, however, including in relation to smallholders:

*“Malawi Mangoes has an active role in the local community, but for the most part doesn’t have particular relationships with central government. At this time, the company is focussing on its core fundamentals, instead of trying to influence government policy.”* (Interview material)

This following quote from the Lujeri Tea Estate study makes clear that this situation is not the result of the relatively small size of the mango industry in Malawi, but is also true in one of the country’s largest export sectors.

*“The Tea Association of Malawi (TAML) are interested in overall tea volumes and exports for statistical collection by the Malawian Government. They are not particularly interested in anything else.”*

In Kenya, data collected on smallholders in the livestock sector, or even just the number of cattle, is limited. The last national livestock census was in 1966, and cattle population statistics from the Ministry of Livestock and Development are based on regional field reports from extension officials<sup>xi</sup>.

These findings suggest either a lack of interest or capacity within government in building and fostering relationships with companies working with smallholders. Governments have strong potential to create accountability relationships that incentivise smallholder data collection. It is therefore important to understand what could encourage them to be more proactive in this area.

**Commercial Creditors.** When thinking about commercial creditors we need to distinguish between those that finance agribusinesses, and those that provide finance directly to smallholders. Both collect data that is seen as commercially valuable, but what this means with respect to smallholders is very different.

As we have seen, the latter group collect SDG-relevant data in areas such as incomes, asset ownership and poverty status. For those that finance agribusinesses, however, this is not the case. Other than where there is a social mandate, the evidence from the questionnaires, semi-structured interviews and case studies suggest commercial creditors of value chains firms focus on their financial and business performance, and are not interested in the role of smallholders. Why is it this? First, financial actors may be unaware of how much of the business relies on smallholder inputs, or even unaware that the company is working with smallholders. Second, the creditor may not see the relevance of smallholder data to financial returns. Third, if the firm itself is not collecting data on smallholders, there is little incentive for creditors to do so.

<b>Table 3: K-LIFT social performance 2017<sup>xii</sup></b>	
<i>Indicator – Social Performance</i>	<i>Value</i>
Number of Clients (outstanding loan balance with the financial intermediary or responsibility for repaying any part of the loan.)	554
Female Borrowers ( percent of female borrowers out of the total active borrowers)	19 percent
Rural Clients	80 percent
Social services	Provided
Micro-insurance	Provided

One of the few exceptions we found was Oikocredit, a creditor of K-LIFT in Kenya with a mandate to invest for social impact in microfinance, fair trade, cooperatives and SMEs. While Oikocredit requested regular reporting on some indicators (Table 3), these are not informative at the individual smallholder level, and also tell us little that is relevant for the SDGs.

**Kenya Livestock Finance Trust (K-LIFT) and the role of cooperatives.** As a financial institution that provides livestock loans to smallholders, K-LIFT has developed close relationships with cooperatives to assist in data collection (e.g. helping fill out loan applications of illiterate smallholders), and verification (by reviewing applications), and in some cases acting as guarantors for the loan. The cooperatives also collect loan repayments on behalf of K-LIFT by subtracting this from its monthly payments to smallholders for milk supplied to the Co-op.

As well as facilitating the collection of SDG-relevant data on poverty and income, therefore, the co-ops also collect data on loan repayments, which complements the data they hold on milk production and supply for individual smallholders.

While there is clearly significant scope for non-commercial actors to create incentives for private firms to collect smallholder data, our research suggests that this potential is largely untapped at the current time.

#### **4. What examples are there of private sector innovations that increase the supply of smallholder data?**

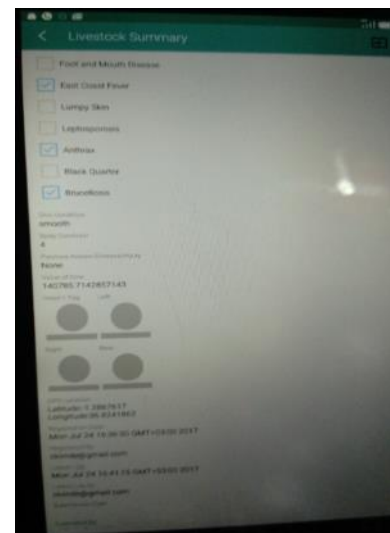
The preceding section highlighted some of the challenges faced in obtaining good data on smallholders. When combined with resource constraints and limited capacity and skills, the problems increase yet further. In this section, we provide two examples of private sector initiatives that could positively affect these constraints. The ultimate aim of both is to increase productivity. If successful, therefore, they could lead to higher smallholder incomes.

##### **New KCC's mobile App and extension services**

New KCC is the second largest dairy processor in Kenya, with a 24 percent market share. Since 2003, it has been 99 percent owned by the Government, and 1 percent owned by trade cooperatives. The company is being held in trust for the 60,000 farmers who produce for these cooperatives.

Historically, New KCC incurred significant reputational damage by not paying farmers on time for milk. This was the result of retailers (the main Kenyan supermarkets) paying New KCC in a 90-120 day window, while farmers need to be paid after 30 days. An overdraft was not sufficient to address the issue, partly because of its high cost, but also because it would not help deal with the problem of oversupply following seasonal gluts, when milk has to be dried and stored for later use. The problem of late payments to smallholders has been made worse by low producer prices and low productivity.

In response to these issues, New KCC has developed a mobile app to capture smallholder cow production in real-time, assisted by a new extension service. The app is currently being trialled with 30,000 farmers. The production data captured serves as collateral, enabling local microfinance



*The app provides a detailed summary on each cow's health, production and feeding*



institutions to provide short-term bridging finance direct to smallholders, ensuring they are paid on time. New KCC than repays the microfinance institutions at a later date when it has been paid.

The app is very useful for KCC. It increases data quality and timeliness on production volumes, and can also map productivity differences. This informs the new extension services being offered to smallholders, which seek to increase milk production from 4-5 litres to 15 litres per day.

In terms of the value chain constraints discussed above, this innovation directly affects the problems of large number of smallholders, and distance between them and buyers. The app allows large numbers of people to record data accurately – particularly when supported by extension workers – and enables this to be transmitted directly to buyers, supporting planning and guiding interventions to increase productivity.

### **Pittards ‘model farms’.**

In an attempt to better understand the determinants of carcass weight, and hide and skin quality, Pittards conducted an experiment with a model farm. As discussed above, Pittards has experienced major problems obtaining enough quality raw material. In response, the company bought and reared 800 sheep. The carcass weights were 25 percent above the Ethiopian average, as well as of higher quality.



*Line of skins being processed at Colba Tannery*

Having demonstrated that quality can be improved, Pittards are deciding what to do with this

information. One option is to work more closely with a group of smallholders, training them in the techniques needed to improve quality, and sourcing hides and skins from this group. The CEO of Pittards describes how this could work:

*“To exploit this opportunity we need to weld science –such as that with our example ranch – to our business model, and use that as a training model to achieve better weights and skins – which would require a network of cooperative farmers around this nucleus plan. If Pittards or another actor implements these new ideas –on farming done in a different and better way – it will be really critical for the success of Ethiopian leather”*

Thus far, Pittards experiment has generated data on the determinants of quality. This has not yet been linked to smallholders, though the potential initiative described above would do this. To work, this would require significant data collection and use to increase productivity and track progress.

This innovation relates to a number of the value chain characteristics identified. First, we see how high product variability can encourage closer relationships between buyers and smallholders. Second, where demand (for high quality hides and skins) is high relative to supply, similar incentives are created. Third, the elimination of intermediaries (in this case collectors) enables buyers to interact directly with smallholders. In each case, incentives to collect smallholder data, and use this to improve productivity, will be increased.

## **5. What could be done to support these innovations, and promote the collection of SDG-relevant smallholder data more broadly?**

Value chains are different in important ways. Constraints to increasing the supply of SDG-relevant smallholder data will vary accordingly. As a result, those wishing to increase the supply of data need to tailor interventions to the value chain concerned. In situations where value chains have particularly strong versions of the characteristics described, it may be difficult to achieve much. It might be better to focus limited resources in value chains more likely to yield results. Our research suggests that this will be in value chains where buyers and smallholders have relatively long-term relationships, or where creating such relationships would be commercially advantageous.

The two examples from the previous section illustrate how the private sector can innovate to address these issues. The question is whether these types of innovation can be replicated elsewhere, and what can be done to encourage this?

Pittards have undertaken a pilot project to test whether and how productivity can be increased. The results suggest it can. One conclusion that could be drawn is that it makes sense to work more closely with smallholders to implement productivity-improving changes. It seems likely that the same would be true in other value chains where quality is variable and can be affected by production techniques. Not all firms have the resources to fund experiments of this kind, however. There would seem to be an important role for donors and others in identifying value chains with similar characteristics, funding pilot experiments, and engaging with private firms to disseminate the results.

New KCC's app shows the value of relatively simple technology. Mobile phones are increasingly ubiquitous, and their developmental uses are only beginning to be explored. In the areas considered in this research, there is a clear potential to create direct links between smallholders and buyers in value chains, generating data that could be used to drive productivity improvements, and helping create commercial incentives to support this. Interestingly, the innovation described in this note highlights other potential uses, such as serving as collateral to address the financing constraints smallholders face. As with the previous example, many agribusinesses will not have the resources to fund innovations in this area, and may also lack knowledge of this emerging area. Similarly, financial institutions may not yet see the potential for these new information flows to act as collateral, and more broadly to generate real-time information on creditworthiness or risks of default.

Disseminating best practice on technology use is an important first step, but more generally more could be done to foster an innovation environment. Supporting training and skills development is obviously important, as is ensuring firms have access to sufficient IT equipment. Resources are not everything of course, but they are certainly important. What is clear from our research is that resources allows scope for experimentation and proof of concept, enabling other private institutions to get involved. For instance, with New KCC and the mobile phone application:

*"We initially started with one or two microfinance institutions (those who supported the data platform). The banks were not eager to participate [as there was insufficient oversight]. Now that the system has been running close to three years, the big banks, KCB and Stanbic Bank, are seeking to be involved."* (New KCC interview)

A more ambitious approach would be the development of an agribusiness M&E innovation fund. Our case studies show that when there is buy-in from the company, more data can be collected on smallholders. However, testing new approaches to data collection and use is costly and has opportunity costs. To de-risk these innovations, an innovation fund for pilot studies on smallholder datasets could help demonstrate what can be done with relatively small investments.

Firms could also be connected with researchers working on relevant issues, a number of positive examples of which emerged during the research. Nairobi University are collecting information on New KCC; a Dutch university is working with Malawi Mangoes, and UTZ are collecting national level data on tea smallholders in Malawi. This is positive, but in many cases the data collected could be put to better use. Often research would be useful to private actors, or to donors or government, but these connections are not always being made.

What was clear in the research process was that ‘data fatigue’ can be a real issue. Simply increasing data requests to busy private sector firms is clearly not the answer. Coordinating and streamlining these requests, and ensuring that the maximum use is made of the data obtained, is a better route. As well as increasing the ability to use this data to design development interventions, this would be crucial for identifying important data gaps that need to be filled.

What can be done on smallholder data collection specifically? Our findings suggests a need to increase awareness of data quality standards. The interviews and questionnaires conducted found limited knowledge of best practice data collection procedures, such as the DCED Standards or IRIS indicators. This was recognised by the firms themselves, with more than half asking for support from development actors to help improve data quality.

A standard template for agribusiness to collect on smallholders would be beneficial. Our recommendation is that this should be limited to a small number of key indicators, linked directly to the SDGs. As we have seen, information will be collected that is seen as commercially useful. Data on productivity and output is likely to be easier to obtain than other development indicators.

Donors and related agencies could develop such a template, but how can they incentivise its use? An important source of potential leverage is to use existing accountability relationships, and establish new ones. Development Finance Institutions (DFIs) invest in private firms and require reporting on the impact of these investments. This raises two issues. First, DFIs could invest more in the agribusinesses, and the financial institutions that support these, involved in value chains that are important for smallholders. Second, their reporting requirements could explicitly incorporate the proposed smallholder template.

A final point concerns national governments. Governments have the greatest potential ability to incentivise private firms to collect smallholder data. Understanding why they are not doing so, and using what influence there is to encourage this, is an important long-term aim.

## **6. Conclusions and recommendations**

Private firms and financial institutions are not NGOs. They will only collect information that they consider commercially important, or are obliged to collect for some other reason. In many cases, this does not currently include SDG-relevant data on smallholders. This is not always the case, however, and this report has provided examples of promising innovations, and also sought to understand the underlying factors that shape private incentives in this area. In the previous section, we discussed what donors and others could do to address these underlying factors, and encourage the replication of existing best practice. Our recommendations in this regard can be summarised as follows:

### **For businesses which already have reasonable links to their smallholder suppliers:**

- Create an M&E innovation fund, based on value chain analysis and literature (e.g. the DfID funded *Capturing the Gains* research consortium) to demonstrate the commercial value of closer, longer-term relationships between agribusinesses and smallholders.

- Support innovation and disseminate best practice on how technology can be used to cheaply and easily collect smallholder data to improve commercial operations.

**For businesses with weaker links to their smallholder suppliers:**

- Develop a standard 'lean' template for smallholder data collection. This should be aligned with the SDGs, and focus on income and productivity to encourage business participation, as they already see commercial value in this kind of information.
- Encourage more and better smallholder data collection by agribusinesses, through relationships with buyers, certification bodies, and investors.

**Other recommendations:**

- Encourage DfID and development finance institutions (DFIs) such as CDC to invest in agribusinesses and financial institutions in value chains that are important for smallholders, using reporting requirements about smallholders as a pre-condition for investment.
- Encourage national governments to develop more sophisticated smallholder strategies, such as national data roadmaps, addressing legal compliance for specific markets, with clear targets and reporting requirements with regards to data collection.

These recommendations range from the relatively simple to the more complex, requiring the activities of a range of development-focused actors coordinating effectively. Much can be done to improve the data that already exists, both in terms of its quality and form, as well as its relevance to the SDGs. To generate significant additional data on smallholders over the longer-term, commercial incentives for private actors need to be increased. At the same time, existing accountability need to be enhanced, and new ones established to create incentives in the same direction. The recommendations described here are designed to further these goals.

## Annex: Research Approach

Smallholders engage in commercial value-chains all over the world. The first decision we had to take was therefore which countries and which value chains to focus on. As described above, we took the view that concentrating geographically would yield the greatest insights. The countries selected were all East African: Ethiopia, Kenya, and Malawi.

The second decision was to choose value chains. Given the differences between these countries, we wanted to look at value chains that were important for smallholders in each case. We also wanted to ensure, within the limits of a project of this scale, that we captured as much diversity as possible. Important differences include product type (e.g. cash crops vs. staples), target market (e.g. export vs. domestic), and value chain structure (e.g. short vs. long). After applying these and other criteria, we focused on the following value chains:

- Ethiopia: meat and leather
- Kenya: dairy and maize
- Malawi: mango and tea

Where possible, we also tried to select complementary value chains, such as meat and leather in Ethiopia, and dairy and maize in Kenya (maize is a key input to the dairy sector). The exception was Malawi, as we wanted to look at an emergent value chain, and contrast this with one more well established. The choice of mangoes, which has only come to prominence in the last ten years, and tea, one of the largest and oldest industries in the country, seemed ideal in this regard.

We then mapped the actors in each value chain, identifying important companies and financial institutions. After a lengthy process, eighteen private sector actors agreed to participate in the project, as described in Table 4.

<b>Table 4: Companies completing questionnaires/interviews, by value chain, role and country</b>		
<i>Name Pro forma Analysis</i>	<i>Value Chain</i>	<i>Role</i>
<b>Malawi</b>		
Satemwa Tea Estate	Tea	Value Chain Actor
Lujeri Tea Estate	Tea	Value Chain Actor
Eastern Produce Malawi	Tea	Value Chain Actor
Malawi 2020	Tea	Supporting Financial Intermediary
Cumo Microfinance	Tea	Supporting Financial Intermediary
Malawi Mangoes	Mangoes	Value Chain Actor
IFC	Mangoes	Supporting Financial Intermediary
GAFSP	Mangoes	Supporting Financial Intermediary
<b>Kenya</b>		
New KCC	Dairy	Value Chain Actor
Meru Central Cooperative	Dairy	Value Chain Actor
K-Lift	Dairy	Supporting Financial Intermediary
Family Bank Kenya	Dairy and Maize	Supporting Financial Intermediary
Unga Maize Millers	Maize	Value Chain Actor
<b>Ethiopia</b>		
Pittards	Leather	Value Chain Actor
Verde Beef Processing	Livestock Export	Value Chain Actor
Luna Farm Export	Livestock Export	Value Chain Actor
Meklit Microfinance S.C	Leather and Livestock	Supporting Financial Intermediary
Oromiya Credit and Saving	Leather and Livestock	Supporting Financial Intermediary

Share Company		
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The primary research involved two stages. First, we surveyed firms with a questionnaire, and followed up by phone, Skype or email. The purpose was to get an overview on how the actors engaged with stakeholders, what data they collected and why, and what constraints they faced.

In the second stage, two case studies (listed in table 5) were chosen in each country to explore the research questions in more depth. As with value chain selection, our aim was to capture as much diversity as possible. In this case, important differences were the degree of engagement with smallholders, approaches to data collection and use, and the potential to yield interesting examples of innovation with scope for wider application.

<i>Name</i>	<i>Value Chain</i>	<i>Role</i>
Pittards	Leather	Value Chain Actor
Meklit Microfinance S.C	Leather/Livestock	Supporting Financial Intermediary
Malawi Mangoes	Mangoes	Value Chain Actor
Lujeri Tea Estate	Tea	Value Chain Actor
New KCC	Dairy	Value Chain Actor
K-Lift	Dairy	Supporting Financial Intermediary

As well as informing the findings summarised in this note, the first stage of the research was used to help select the case studies, and shape the interviews in each case. The fieldwork took place in November 2018, and entailed interviews with senior staff, smallholders and intermediaries.

<sup>i</sup> IFAD (2013). “[Smallholders, food security, and the environment.](#)” Available at:

<sup>ii</sup> For the full research approach and the list of the 18 actors who engaged in the research, please refer to the annex.

<sup>iii</sup> A limitation to the research is that agribusinesses that sell to smallholders (apart from financial service providers), did not engage in the study, or complete questionnaires, despite multiple requests. As a result, we are mostly looking at the smallholder company, seller and buyer relationship respectively.

<sup>iv</sup> Goldman, L., et al. (2016). “[Inflection Point: Unlocking growth in the era of farmer finance](#)”, Dalberg Global Development Advisors. The Initiative for Smallholder Finance: 1-70.

<sup>v</sup> Can be compared against findings from the World Bank’s Living Standards measurement study country data in Africa.

<sup>vi</sup> AECF provides a categorisation from informal to nucleus-estate models. [Link](#).

<sup>vii</sup> Much effort has been placed into this field to ensure that data is more applicable, such as [Acumen’s lean data approach](#) to ensure that consumer data has practical relevance to the firm. This could be applied to smallholders also.

<sup>viii</sup> See <http://www.thereporterethiopia.com/content/hide-skin-traders-claim-tanneries-manipulated-market-price>

<sup>ix</sup> Attitudes to Sainsbury’s shift to ‘Fairly Traded’ appear to be influenced by the level of engagement with Sainsbury’s. Early engagement and the provision of support from Sainsbury’s, for example, seemed to support a positive attitude to the change.

<sup>x</sup> See Gereffi, Humphrey, Sturgeon (2005) and Humprey, Schmitz (2001)

<sup>xi</sup> Menjo, D (2017) ‘National/ county dairy baseline data and strategic planning framework’ Internal Presentation.

<sup>xii</sup> See: <https://www.oikocredit.coop/what-we-do/partners/partner-detail/10789/kenya-livestock-finance-trust>