

A report by

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hybrid strategies consulting

SMALLHOLDER FARMERS AND BUSINESS

15 pioneering collaborations
for improved productivity
and sustainability




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ABOUT HYSTRA

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This report is part of a larger collaboration to promote social business and entrepreneurship in collaboration with **Ashoka** and **SDC**.

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INTRODUCTION

Productivity-enhancing products and practices can significantly and sustainably increase smallholder farmers' incomes, as well as improve their livelihoods. Yet, they are not adopted as extensively as they should by the world's 1.5 billion smallholder farmers. This study looks at how pioneering companies and organizations have succeeded in enrolling smallholder farmers in productivity-enhancing schemes, sustainably and at scale – either as buyers of produce or sellers of products, services or equipment.

An estimated 1.5 billion people directly depend on small farms for their income,¹ and these farms in turn produce nearly 80% of all food consumed in the developing world.² Smallholder farmers are also among the poorest and most food insecure people on the planet. A striking three quarters of the world's extreme poor - 800 million people - live in rural areas solely off agriculture,³ while nearly half of the world's undernourished people are smallholder farmers.⁴

Smallholder farmer – a definition

How small is a smallholder farmer? We included in this report case studies that work with a range of farm sizes. One third of our case studies deal with very small farmers (i.e. owning less than 2 acres of land or 2 cows). Another third work with farmers owning about 2 acres or 2 cows, and another third with larger farmers (up to 7 acres or cows). These farmers were typically earning \$US 230 to 2,100 net a year from selling their produce, before entering the programmes led by the case studies we analysed.⁵

The challenges facing smallholder farmers are well known. Rural families living off the sale of cash crops have very little material savings and the little they have can be wiped out in a single bad harvest. Smallholder farmers living in remote areas face difficulties accessing both input and output markets. The generations-old techniques, inputs and equipment employed by smallholder farmers are relatively inefficient, and often produce low yields. The vast majority have no titles to the land on which they work, basic market information or any form of training. Consequently, smallholder

farmers are often at the mercy of middlemen, known by predatory names in many cultures around the globe, such as coyotes in Central America or pisteurs (trackers) in West Africa. Compounding these difficulties, as weather patterns become more unpredictable and global food prices more volatile, smallholder farmers are increasingly vulnerable.

Despite this bleak picture, there are reasons to remain optimistic: the adoption of good farming practices throughout the production process alone can have a lasting impact on yields. And there are many innovative products and services that can substantially raise the productivity and incomes of smallholder farmers. For example, the use of higher quality seeds alone can improve crop yields by 50%. Cross breeding of local cows with hybrid species can lead to stronger and healthier livestock that produces 2-3 times more milk. Most smallholder farmers rely solely on rainwater for their crops, while basic irrigation systems could double a field's productivity.

Yet, companies and organizations that strive to introduce these best practices and technologies often struggle to ensure widespread access, adoption and use among smallholder farmers. The latter often say they do not have the cash at hand and need a financing solution adapted to their situation. Possibly a more fundamental reason is a lack of trust, that investing in these products or services will effectively bring them the expected benefits. In many cases, they simply cannot afford to fail.

1 FAO Factsheet: www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/Factsheet_SMALLHOLDERS.pdf

2 FAO (2011), Save and Grow: A policymaker's guide to the sustainable intensification of smallholder crop production

3 World Bank World Development Report on Agriculture and Poverty Reduction: http://siteresources.worldbank.org/INTWDR2008/Resources/2795087-1191440805557/4249101-1191957549239/Brief_AgPovRedctn_web.pdf

4 FAO, WFP and IFAD (2012), The State of Food Insecurity in the World 2012

5 The only exception is Margarita, which works with farmers owning on average 25 cows, and whose income levels are much higher:

To address these issues, holistic solutions are needed: Products and services need to come with financing solutions and sufficient training to ensure optimal use; increasing productivity needs to come with access to markets; and increasing incomes needs to come with opportunities to grow larger farms and operations. Some pioneering businesses and organizations have found innovative ways to deploy such holistic solutions. After reviewing over 270 organizations globally, we identified 15 of them - corporations as well as NGOs

- that successfully increased the availability, adoption and appropriate use of productivity enhancing products and practices among smallholder farmers, often at very large scale. We analysed their operational, financial, environmental and social performance via field visits and interviews to analyse innovations and best practices.⁶The 15 organizations we selected for this study operate in over 15 commodities and serve over 2 million smallholder farmers globally.

The key findings of this research and learnings from these case studies are summarized in this report.



6 For more information, see the Methodology section

EXECUTIVE SUMMARY

This report focuses on increasing smallholder farmers' productivity as a way to improve their incomes and livelihoods. Focusing on how farmers can increase their yields and incomes places them in the centre of the change they would like to see. This report strives to demonstrate that smallholder farmers are capable of change and that they should be treated as active partners, rather than beneficiaries. It was written on the premise that they are rational producers and consumers, who aspire to be in control of their own destiny.

The key findings of our research are summarised in this report around three broad sections:

- strategies for creating new value along the value chain
- cost-efficiently, and
- capturing the value created and sharing it sustainably for both farmers and the organizations working with them.

In the *first section* of the report, we discuss strategies that maximize the creation of new value, as opposed to strategies that redistribute the value that already exists. We argue that as more value is created from the start, the more there is to share along the value chain. The analysis of our 15 case studies indicate that focusing on the provision of technologies that increase productivity is the main lever to create value, ahead of value chain disintermediation⁷ or price premium redistribution strategies (chapter 2).

Cutting intermediaries out of the value chain or transferring a market premium to farmers may bring (limited) additional income, but will not transform their life, as they remain dependent on the goodwill and success of the organization they work with. In contrast, providing them with a micro-irrigation system or a hybrid cow has potential to have them earn much higher income, based on their own choices and labour. Technology also has the potential to create momentum that will change things in the long-term: larger and more successful farmers should also be in a better position to negotiate prices and contracts for themselves, empowering them in their dealings with others.

Encouragingly, our findings also point out that the value created by investing into the productivity of smallholder farmers dwarfs the costs involved in having farmers adopting new practices and products.

This is exciting news for the organizations working with smallholder farmers, as it does make business sense to invest in those farmers for the longer term (chapter 1). Finally, we look at what drives farmers' risk aversion and possibly limits the penetration of some interventions. We observe that the proportion of farmers willing to change their methods is not linked to the promise of significant returns or to the level of investments required; but rather to the reversibility of their decision if they are not satisfied with the results (chapter 3). We conclude this section by highlighting that the power wielded by organizations that work with these farmers comes with great responsibility, as they also need to find ways to protect the more vulnerable farmers from failure (chapter 4).

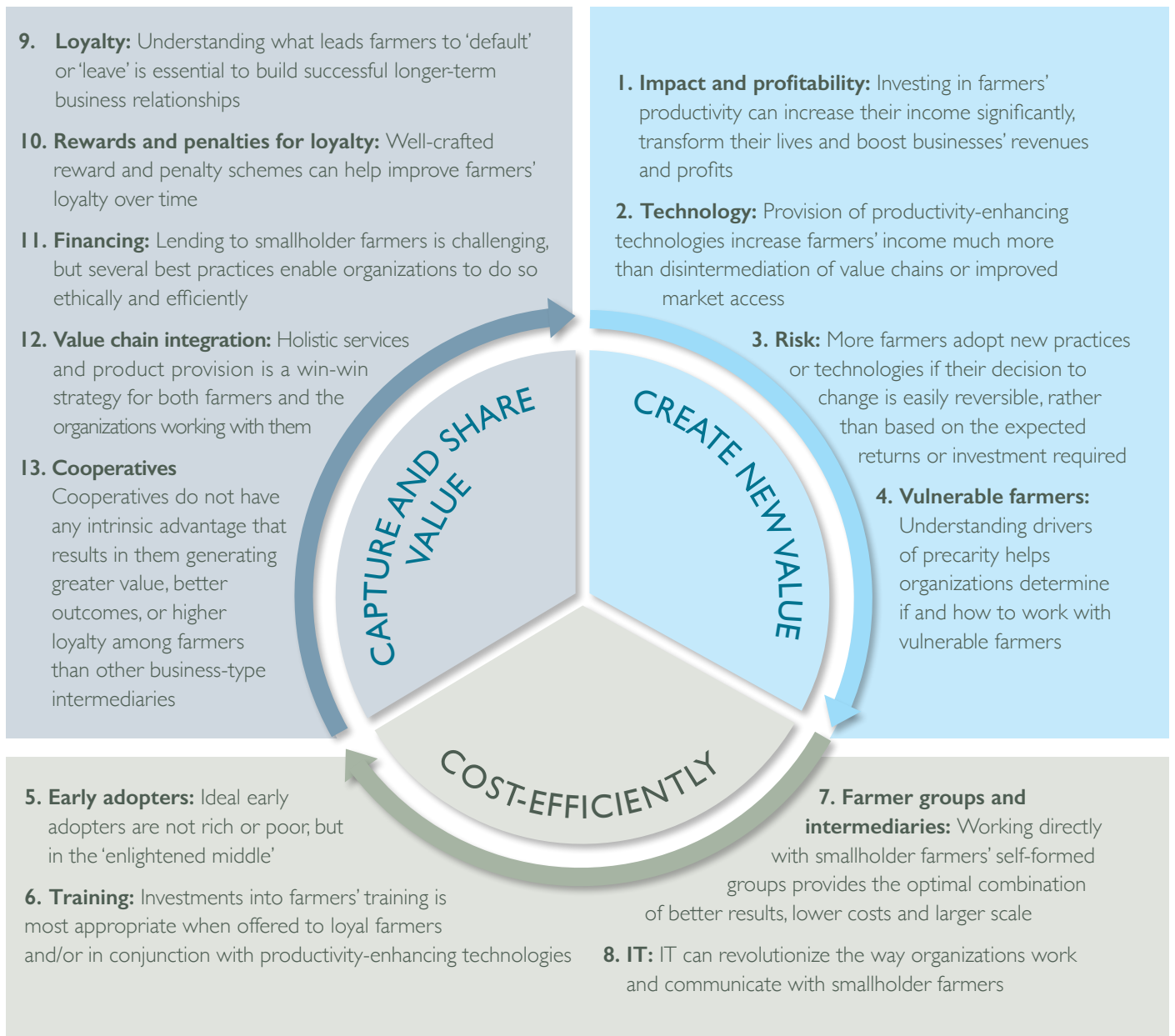
In the *second section* of the report, we discuss how to create new value in the most cost-efficient way possible. We argue that organizations working with smallholder farmers should focus on the entire adoption life-cycle and not just one-shot product sale or harvest purchase. Sustainably building a large base of clients or contract farmers requires:

- a) Identifying the right early adopters and helping them succeed in a way that is demonstrable to other farmers, through tailored and intensive support (chapter 5)
- b) Cost-effective expansion: once the first farmers are enrolled successfully, operations must be engineered for cost-effective scale-up. We discuss in particular the need for training and best practices in deploying it (chapter 6), the options for scaling up operations such as working with independent groups of farmers or through intermediaries (chapter 7), and the way IT can change dramatically the economics of working in rural areas (chapter 8).

⁷ Value chain disintermediation strategies include interventions that aim at shortening and streamlining the value chain, by replacing or consolidating many smaller intermediaries into less players. This can be done for instance by linking farmers with manufacturers (by-passing local traders), or by setting up cooperatives that ensure harvest collection, processing and re-sale of produce in-house (instead of multiple local intermediaries).

In the *third and final section*, we discuss ways to capture and share the value created along the value chain sustainably for both farmers and the organizations working with them, through balanced arrangements and long-term relationships. To operate sustainably and grow, agricultural businesses need farmers to respect their engagements (e.g. refrain from side-selling and repay credit on time), as well as become repeat customers or suppliers. In this section, we first outline what motivates farmer loyalty (chapter 9); and then discuss the various strategies to increase it. This

includes designing a system of rewards and penalties (chapters 10 and 11), or providing holistic services and products (chapter 12). We also discuss the need for 'benevolent' organizations, which guarantee a fair share of the value created to farmers and protect their interest. We found that cooperatives and other farmer-owned intermediaries do not necessarily have intrinsic qualities that would make them outperform other types of organizations in terms of capturing more of the value created on behalf of farmers.



METHODOLOGY

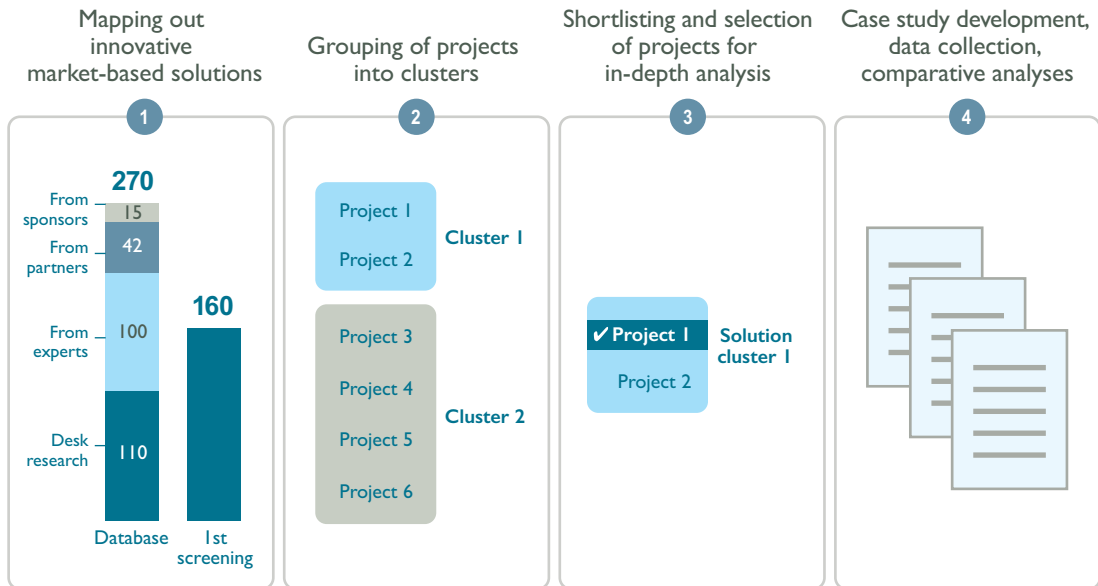
This report follows a methodology that was developed and refined by Hystra in a number of studies and publications. The fundamental idea behind our approach is there is more to learn from analysing successes than analysing problems. Today, many pioneering organizations around the world have found innovative, market-based solutions to working with smallholder farmers and overcome some if not most of the challenges involved in doing so. The findings of this report are based on an in-depth review of the performance and work of 15 of these pioneering organizations. While these findings may not be applicable in all situations, they will hopefully provide inspiration and motivate other organizations.

Our methodological approach can be broken down into four broad steps:

1. Mapping of innovative projects that aim at improving the productivity of smallholder farmers, in a financially sustainable way, worldwide. Through extensive desk research and interviews with 21 experts from think tanks and development agencies, we identified 270 organizations and projects. After removing those which were smaller in size (i.e. working with less than 15'000 farmers) and less sustainable financially (i.e. relying mostly on grant funding), our list totalled 160 projects.
2. Clustering of organizations and projects around selected topics and approaches. Each topical cluster addresses a different set of problems faced by smallholder farmers and thus offers a different set of potential lessons. The clusters are:
 - Provision of inputs, assets and services, with or without financial solutions
 - Contract farming and other schemes buying produce from farmers
 - Large-scale training and certification programmes
 - Value chain dis-intermediation or integration interventions
 - Sector wide efforts to improve pricing, transparency and efficiency
3. Shortlisting organizations within each cluster, to select 15 of the more innovative, successful and sustainable ones. The 15 case studies featured in this report are not necessarily the “best” ones, but rather a sample of the organizations that developed innovative approaches to sustainably work with smallholder farmers, which we could learn from.
4. In-depth analysis of 15 case studies, mostly through extensive due diligences in the field.⁸ A consistent framework was used to investigate all the case studies, consisting of a detailed questionnaire about the organization’s history, operations and business model, as well as questions related to its social impact, operational and financial performance, environmental sustainability, and potential for scale and replication (see all case studies, organized along this template in Appendix B). In total, we gathered information on more than 60 qualitative and quantitative indicators. Such a systematic approach allowed us to conduct comparative analyses on a number of focus points (which correspond to our various chapters in the report) to understand why some performed better in some aspects over others and extracted the resulting best practices or lessons learnt. Whenever possible, we used the data from all 15 case studies to conduct our analyses. When the required data was not available, the results were extracted from a smaller sample, as shown in the various diagrams and tables of the report.

⁸ Due diligences comprised of two to three day visits of field operations and farmers, as well as numerous discussions and interviews with both the management and field teams. In total, we interviewed 77 people across all case studies, not counting numerous discussions with farmers. In two cases (out of 15), field visits could not be conducted in situ and were replaced by series of phone interviews.

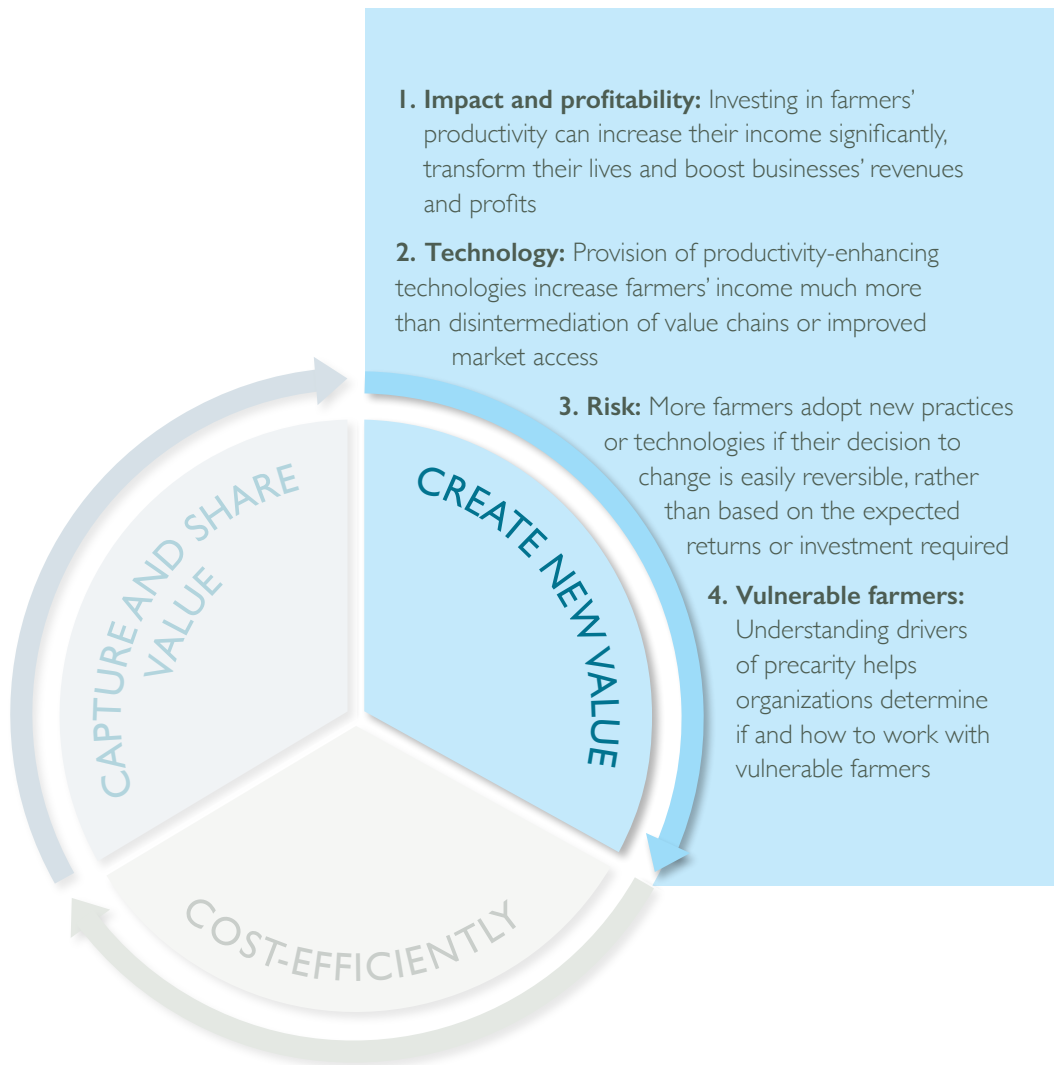
Methodology



Disclaimers:

- 1) While this report focuses on ways to build better livelihoods for smallholder farmers, it bears no judgment on whether smallholder farming is a relevant model for agriculture in developing countries. We only observe that a) a proportion of the world's vulnerable smallholder farmers could benefit tremendously from productivity-enhancing products and practices and b) that small farms are there to stay, as the average farm size is decreasing in Asia and Africa.
- 2) We tried to understand the environmental impact our case studies had. However this aspect is not the focus of this report. For instance, we have not done an in-depth assessment of the impact that systematic use of the technologies featured in this report, such as improved seeds, chemicals, hybrid breeds of cattle, would have on the surrounding natural ecosystem. However, we did look at whether the case study organizations ensured the appropriate use of these products and assets (e.g. offering training on fertilizer dosage, or on farming practices that protect soil fertility). In any case, this report is not a proponent of any given technology featured in the case studies, but has selected case studies in light of the best practices that readers could draw from them.
- 3) Because this report is centered on advancing the economic opportunities available to individual farmers, questions regarding the effect of these interventions on the wider market fall beyond its scope. For instance, we understand that helping smallholder farmers may result in some level of consolidation that will likely impact others.
- 4) While we do not claim that the 15 organizations featured in this report are the best worldwide, they are representative of successful approaches scaled up in many different countries, across various commodities. Comparing their performance, approach, learning from both their successes and failures, brought us many insights on what works and why.
- 5) We drew conclusions from a limited set of 15 examples. And in an effort to illustrate the common features among best practices, we have had to overlook some important nuances. For example:
 - We treat smallholder farmers as a homogeneous group, whereas there would be distinctions to make by crop, geography, level of wealth, etc.
 - Given the wide range of commodities covered in the examples we analysed, it is possible that not all lessons summarized here are relevant to all products and geographies.

SECTION I





I. INCREASING INCOMES, TRANSFORMING LIVES AND GROWING BUSINESSES

Investing into the productivity of smallholder farmers can increase their income significantly and durably, transform their lives *and* boost the revenues and profits of the businesses serving them.

Working on small farm productivity stands among the most exciting opportunities to increase the income and transform the lives of many of the 1.5 billion rural poor living off small farms. When buyers of produce or sellers of products and services work with smallholder farmers, the latter benefit in multiple ways: Farmers preserve the fertility of their land better by adopting more sustainable agricultural practices. They increase yield and quality of their production. And they enjoy

better market access and higher prices, as well as get access to better quality inputs and equipment, often at a better price.

The 15 case studies featured in this report managed to increase farmers' net incomes⁹ by 20 to 140%, over a single harvest cycle. This translates into real additional net yearly incomes of \$24 to \$824 per acre (for crops) and \$52 to \$1000 per cow (for milk).¹⁰

Increase in farmers' net incomes across case studies

Size of farmer	Increase in farmer net income	Increase in farmer net income per acre or cow	Commodity	
Very small (less than 2 acres/2 cows)	Project 1	41%	NA	Various crops
	Project 2	57%	\$130	Maize
	Project 3	60%	\$329	Cash crop
	Project 4	91%	\$60	Maize
	Project 5		\$24	Milk
Small (approx. 2 acres/2 cows)	Project 6	25%	\$60	Cash crop
	Project 7	80%	\$1,000	Various crops
	Project 8	100%	\$675	Onion
	Project 9	120%	\$295	Milk
	Project 10	125%	\$400	Milk and other crops
Medium (more than 2 acres/2 cows)	Project 11	20%	\$67	Cash crop
	Project 12	31%	\$52	Cash crop
	Project 13	35%	NA	Soybean
	Project 14	38%	\$61	Cash crop
	Project 15	140%	\$824	Milk

⁹ These are averages, which were observed by case study organizations. When these figures varied significantly from season to season, we took the 2014 average.

¹⁰ Net income is computed by taking the income from sales of produce, minus cost of production. Increase in farmers' net income is computed by taking yearly additional income (due to higher yield or better prices), plus additional yearly savings, minus additional yearly costs, compared to the previous situation or previous year. If the costs relate to a multi-year investment (e.g. cow), we divided the total investment cost by the asset productive life years.

These case studies also brought benefits to farmers that went beyond economic gains. Allowing farmers to earn more money consistently and on time can transform their livelihoods in significant ways. The most obvious benefit comes from the ability to plan and invest for the longer-term, not only into their farms but also their children and their future. It can also free them from exploitative intermediaries, who trap them into a vicious dependency cycle. For a certain proportion of them, this allows them to become entrepreneurs who run and grow their farms like businesses.



"We used to sell our milk to traders, but they would never pay on time. Now, we get paid five times more, consistently on time. We can now save, plan and educate all of our 8 children without taking any debt".

Joseph and Paulina Bett,
East Africa Dairy Development farmers, Kenya

Working with smallholder farmers also makes business sense. Contrary to the belief that dealing with such farmers is too costly, our case studies – ranging from large corporations to NGOs – prove that this can be a profitable endeavour. Among our case study examples, buyers of produce get 2-24% additional net margins.¹¹ For instance, the Kenya Tea Development Agency, an organization that manages the tea value chain on behalf of over half a million smallholder farmers (or 60% of Kenya's tea production), works through cooperative factories. The factories each produce a specific tea which is independently offered on the

Mombasa Tea Auction market, and where the superior quality of the Agency's teas earn an average 20% premium on other Kenyan teas.

In addition, working with smallholder farmers may represent a strategic advantage for companies looking to diversify their supply, often with better traceability. Take these three case studies for example:

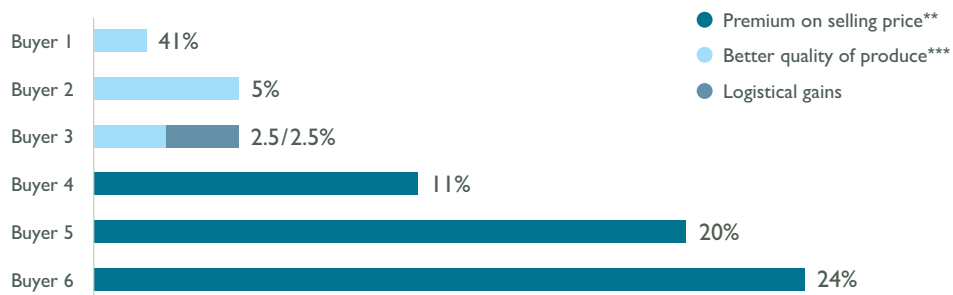
- Danone Mexico, through its self-sustaining Margarita milk sourcing programme, is able to source 12% of its milk from 300 small dairy farmers it trains and finances with the help of Technoserve, while improving their incomes by increasing yield, quality and herd size.
- Chocolate manufacturer Barry Callebaut has ensured the full traceability of its certified cocoa, and is able to offer its clients direct access to over 20,000 smallholder farmers, as it invested into Biopartenaire (Biolands Group) - a profitable \$12 million dollar business sourcing certified cocoa from smallholder farmers in Ivory Coast.
- The Cotton made in Africa organization has allowed 20 major brands and retailers (including the Otto Group and Puma) to source cotton sustainably grown by nearly half a million African smallholder farmers. Between 2008 and 2014, more than 100 million garments have been produced with the Cotton made in Africa labelling.

For sellers of inputs and equipment, the picture is equally attractive in terms of sales volumes: those case studies grew their client base 3 to 5 times, compared to targeting only larger farms. For instance, BASF registered a strong increase in sales of crop protection products in India since launching its Samruddhi programme. The programme provides agricultural training to some 325,000 smallholder farmers and advises them on the use of fertilizers and crop protection products. The costs of the programme – fully financed by BASF, not as a Corporate Social Responsibility project but as a go-to-market approach – are now more than offset by the additional sales.

¹¹ Additional net margins are computed as a percentage of sales of the case studies, compared to the net margins they would realize with similar farmers that had not adopted the product or practice promoted by the case study.

Business benefits for case studies buying produce from farmers or selling products and services

Additional net margins for buyers of produce* (as % of sales)



Increase in number of small-scale farmer clients for sellers of inputs/equipment



* On top of margins made at the processing plant or dairy hub level

** Premium on price of product sold (e.g. market premium fetched by the Kenya Tea Development Agency factories on Mombasa auction)

*** Better quality of produce collected from farmers, yielding higher returns in processing (e.g. JAIN onions have higher solid content)





2. PRODUCTIVITY-ENHANCING TECHNOLOGIES BRING BIGGEST INCOME GAIN FOR FARMERS

It is possible to double farmers' income when providing them with productivity-enhancing technologies. In contrast, case studies focusing on removing value chain inefficiencies, improving market access, or capturing a price premium on behalf of farmers achieved lower income increases.












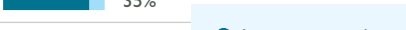



The analysis of the case studies featured in this report suggests that significantly increasing or even doubling farmers' incomes may only happen when value is added to the value chain, and not merely redistributed along it. And this is where productivity-enhancing technologies come into play.

We found that all case studies able to increase farmers' net incomes by 80% to 140% in a year relied on some form of productivity-enhancing technology or equipment. In contrast, case studies focusing on re-distributing the existing value — by removing value chain inefficiencies, disintermediating smaller players

along the value chain, or improving market access — brought 20 to 60% additional income to farmers. A likely explanation is that logistical and often more systemic issues limit the amount of lost value that can be captured and transferred back to farmers.

The critical importance of technology to improving farmer welfare is also noted by a World Bank study. It found that positive economic impacts were most evident across several agricultural indicators for interventions providing productivity-enhancing technologies, when compared to other programmes.¹²

Drivers of farmers' net income increase

	Increase in farmer net income	Productivity-enhancing input and equipment	Market access / purchase	Technical assistance
Project 1	 140%	✓	✓	✓
Project 2	 125%	✓		✓
Project 3	 125%	✓	✓	✓
Project 4	 120%	✓	✓	✓
Project 5	 100%	✓	✓	✓
Project 6	 91%	✓	✓	✓
Project 7	 80%	✓		✓
Project 8	 60%		✓	✓
Project 9	 57%	(✓)		✓
Project 10	 41%			✓
Project 11	 38%			✓
Project 12	 35%		✓	✓
Project 13	 31%		✓	✓
Project 14	 25%		✓	✓
Project 15	 20%		✓	✓

- Increase in production and productivity
- Higher selling prices
- Others (savings, dividends etc.)

¹² IEG (Independent Evaluation Group). 2011. Impact Evaluations in Agriculture: An Assessment of the Evidence. Washington, DC: World Bank

What are productivity-enhancing technologies?

In this report, we include any technological innovation, which is disruptive in the farmer's context and which increases farm productivity and crop quality. This can take the form of an irrigation system, a more productive hybrid cow breed or appropriate fertilizers and improved seeds.

+30-80% productivity increase/acre



Quality fertilizers



Improved seeds and seedlings

+50-100% productivity increase/cow



Improved breeds of cows

+ 25-150% productivity increase/acre



Micro-irrigation systems

This is what Samriddhi found out in Bangladesh. Samriddhi is a value chain development project that identified and trained a network of lead farmers. The lead farmers in turn offer tailored goods and services in the neighbouring communities, reaching a total of 700,000 farmers. Samriddhi initially aimed to work in 13 different value chains. Out of those, three did not involve the provision of any productivity-enhancing technology (jute, plant crafts and goat farming), and were ultimately discontinued for lack of increased income to farmers, among other reasons.

This is not to suggest that including technology alone is sufficient to double farmers' net incomes: rather, it is a necessary condition. Essentially, whenever we observed the doubling of farmers' income, a transfer of technology was involved. No case study managed to do the same without transferring technology.

Organizations providing productivity-enhancing technologies to farmers also empower them by giving them the means to actively increase their income and better their livelihoods. This also contrasts with

projects that seek to focus on redistributing value in the chain – for instance by replacing informal traders, improving market access, or seeking to capture additional price premiums on behalf of farmers. Even when this is done through the intermediary of farmer-owned organizations such as cooperatives, farmers are still beneficiaries depending on the goodwill and success of structures and players they have little or no control of. The provision of technology also has the potential to create a positive momentum, as larger and more successful farmers should also be in a better position to negotiate better prices, access and contracts. Finally, we would like to argue that if there is more value created at the beginning of the value chain, there is more to share between all the players along it. It becomes a win-win game, as farmers become partners in the organization's success.



3. WHAT RISKS PREVENT FARMERS FROM EMBRACING NEW PRODUCTS AND PRACTICES

Convincing farmers to adopt new practices or technologies is challenging. However, their behaviour does not seem driven by the amount of money they need to spend to improve the productivity of their farm, or by the attractiveness of anticipated returns. Instead, what they fear most is being locked into a situation that leaves little chance to return to their previous methods.


































Much has been written on smallholder farmers risk aversion. Understandably, a farmer dependent on a small plot of land to feed her or his family thinks twice before changing anything that could jeopardize the harvest and result in starvation. But we wanted to understand specifically what drives farmers' adoption of a new product or practice or hinders it.

Penetration rates among farmers varied significantly across our 15 case studies: a cluster of case studies managed to reach a penetration of 60 to 90% over time, while others were stuck at 15 to 25%.

Interestingly, the prospect of important financial gains does not seem to drive farmers' behaviour. As shown in the table below, some of the case studies that bring the highest increases in net income record rather low penetration. And the case study that recorded a 90% penetration helps farmers achieve relatively little additional net income per year.









Similarly, it is not the level of investment required that puts off farmers. Two case studies requiring farmers to pay upfront 40 and 60% respectively of the value they can hope to get from their investment recorded very high adoption rates, while other case studies that require little or no investment recorded relatively low levels of adoption.

Prospect of important gains and limited need for upfront investments do not drive penetration

Penetration rate (%)	Original net yearly income and net increase as a result of intervention (US\$)	Cost of intervention to farmers in % of additional revenues
Project 1  90%	 274 / 164	 40%
Project 2  70%	 2,500 / 500	 23%
Project 3  70%	 38 / 48	 40%
Project 4  65%	 659 / 208	 26%
Project 5  60%	 491 / 589	 60%
Project 6  25%	 1,350 / 1,350	 27%
Project 7  20%	 // 14,714 // 20,600	 29%
Project 8  15%	 228 / 130	 42%
Project 9  15%	 2,500 / 2,000	 12%
Project 10  15%	 480 / 120	 0%
Project 11  1%	 800 / 1000	 40%

According to our analysis, the single most important factor driving farmers' adoption is how easily farmers can reverse their decision. Case studies that enjoy rapid and widespread adoption are those that avoid engaging farmers into very long-term commitments. In those cases, farmers can go back to their previous practices if they so wish, at little or no cost. On the contrary, the case studies that struggle to achieve widespread adoption are 'one-way-tickets', whereby it becomes very difficult for farmers to go back to the status quo.

Ability to easily quit project drives penetration

Penetration rate (%)	Ability to quit project easily	Guarantee / insurance
Project 1  90%	✓	✓
Project 2  70%	✓	
Project 3  70%	✓	
Project 4  65%	✓	✓
Project 5  25%	✓	✓
Project 6  20%		
Project 7  15%		
Project 8  15%		
Project 9 1%		✓

Situations can vary, but a 'one-way-tickets' could be, for instance, organizations that offer multi-year investments such as trees, and to some extent expensive hybrid cows. In those cases, farmers are somewhat stuck with their decision for the longer-term. The time needed to have their investment become fully productive is also usually longer, which means the risk they bear is higher for longer.¹³ The value proposition is essentially different for a farmer who switches from maize to soya for a season (or as long as soya fetches higher prices) vs. a farmer who invests into planting cocoa trees that will take years to grow. If the cocoa prices fall, the farmer is stuck with his plantation, and it is extremely difficult for him to go back to other crops. The problem is identical for projects that require farmers to engage into a long-term organic conversion process.

There seems to be no easy way out for case studies proposing 'one-way-tickets', and their success will very much lie in their ability to develop business models viable with low penetration rates. The case of Khyati Foods, an Indian organic food processor, illustrates this challenge and points to some solutions. Khyati Foods has engaged 15,000 smallholder farmers in a 3-year organic conversion process, during and after which Khyati Foods commits to buy all the harvest. The certification, however, requires that no pesticides or other unauthorized substances are used at any point of time during and after the conversion period, which would nullify all the farmers' efforts up to that point. While a worthwhile effort for farmers with fragile lands (in those cases, soil productivity should increase progressively, rather than decline, it is understandably perceived as a risky endeavour.

¹³ This does not mean that farmers do not value stability in the relationship they have with the case studies organizations (see chapter 12). Similarly, the predictability in prices and income is important to them (see chapter 10). What is making them shy away is rather the irreversibility or lock-in of a particular intervention.

To help farmers along the way, Khyati Foods offers a combination of long-term incentives and short-term rewards. It insists on the fact that farmers will realize significant cost savings on chemical inputs (5-10% of income) from the first year onward, allowing them more financial independence from money lenders as a result. In the second year of production, farmers start reaping the benefits of higher productivity linked to organic soil treatment. In the fourth year, the organic price premium will kick in. Throughout those years, Khyati guarantees to buy their crops, even if not yet certified organic, and provides ongoing support.

As adoption and penetration rates are a matter of risk, one may wonder if the provision of insurance effectively helps address farmers' concerns. As shown in the table above, four case studies propose insurance schemes. In those cases, and based on a limited sample of case studies, it appears that this does not drive adoption and penetration. We explain this by the fact that what drives farmers' aversion is not covered by those insurance policies. It is not the fear of the drought that will dry out the land, or the disease that will decimate cattle that they seek protection against: it is the 'irreversible' changes which drives farmers away from interventions that could improve their livelihoods. This does not mean that it does not make sense to insure farmers against adverse events (see chapters 4 and 11), but that the guarantee offered by such insurances is not sufficient to convince most farmers to adopt a particular technology, crop or practice when it means difficult-to-reverse changes.





4. HOW TO DEAL WITH VERY VULNERABLE FARMERS

Understanding what drives farmers' vulnerability can help companies and organizations engage with them more ethically and avoid leaving them worse off than before in case of a poor harvest, price drops or adverse events.

As we have seen in the three first chapters, the opportunities to change smallholder farmers' lives for the better are tangible and significant. But with great power come greater responsibility.

All our case studies deal with smallholder farmers, most of which survive on very little. But some of them are more vulnerable than others. These are the farmers with very small plots or very low productivity, who are already in debt, or who cultivate a crop with high price volatility.¹⁴ When dealing with such farmers, organizations need to make sure they do not render them even more exposed to climate, crop or price related shocks. A duty of care is required when offering deals that may increase their vulnerability (e.g. new expensive equipment on credit, or 'one-way tickets' which limit their ability to switch back to previous crops and practices).

What measures could organizations and companies adopt to deal more responsibly with smaller, more fragile farmers? This chapter offers some early pointers and best practices based on case study examples:

- a) Tailoring offers to farmers in a way that is specific to their circumstances. Buyers of produce are well positioned to assess this. For example:
 - Biopartenaire proposes two options to their farmers: culture intensification (e.g., with use for fertilizers etc.) is only advised to farmers who can easily pay back this rather significant investment (i.e., with young, healthy trees). For farmers with older fields, where the use of fertilizers may not result in significantly higher yields, Biopartenaire proposes them to diversify their production with agro forestry practices, helping farmers make the most out of older cultures.
 - JAIN, a leading diversified agriculture company in India, has a similar approach with its various contract farming schemes, offering them only to those farmers with adequate irrigation systems in place.
- b) Providing insurance or at least flexible repayment terms in the case of credit organizations. For organizations selling inputs or equipment (on credit or not), making sure that farmers are successful is essential for both the farmers and themselves. As we will see in chapter 11, some of our case studies take insurance for all their farmers (often bundled with other products and services), as this protects both sides in the case of adverse events. Similarly, One Acre Fund, an NGO delivering a package including inputs and training to over 200,000 smallholder farmers per year in East Africa, is able to offer it on credit, even to farmers with meagre or irregular incomes. They propose a fully flexible repayment schedule over 10 months, which accounts for farmers' irregular cash flow. Such a mechanism requires setting adequate targets and instructing field staff on respectful and effective methods for encouraging loan repayments.
- c) Smoothing out farmers' cash flow. As seen in chapter 10, farmers highly value some form of minimum price guarantee or other mechanism that ensures a more stable income, even if it means not always getting the best prices on the market. Responsible buyers in our study often offer a fixed price or price range throughout the year for crops with high price volatility. For example:
 - PRAN, the largest food processing company in Bangladesh, has set up a network of dairy hubs sourcing milk from 10,000 smallholder farmers with the support of Tetra Pak, a global leader in processing and packaging equipment and materials. PRAN-Tetra Pak sets the price at which it buys its milk from farmers for the next 6 months to one year, making 1 or 2 adjustments per year within a $\pm 10\%$ range according to market trends.
- The microfinance branch of the Kenya Tea Development Agency, Greenland Fedha, measures the deliveries of tea made by farmers (and corresponding payments) to assess farmers' creditworthiness, and tailor loans accordingly.

¹⁴ It would be illusory to propose here thresholds beyond which the level of vulnerability would become significant, as it depends on the context, crop, geography and intervention at hand.

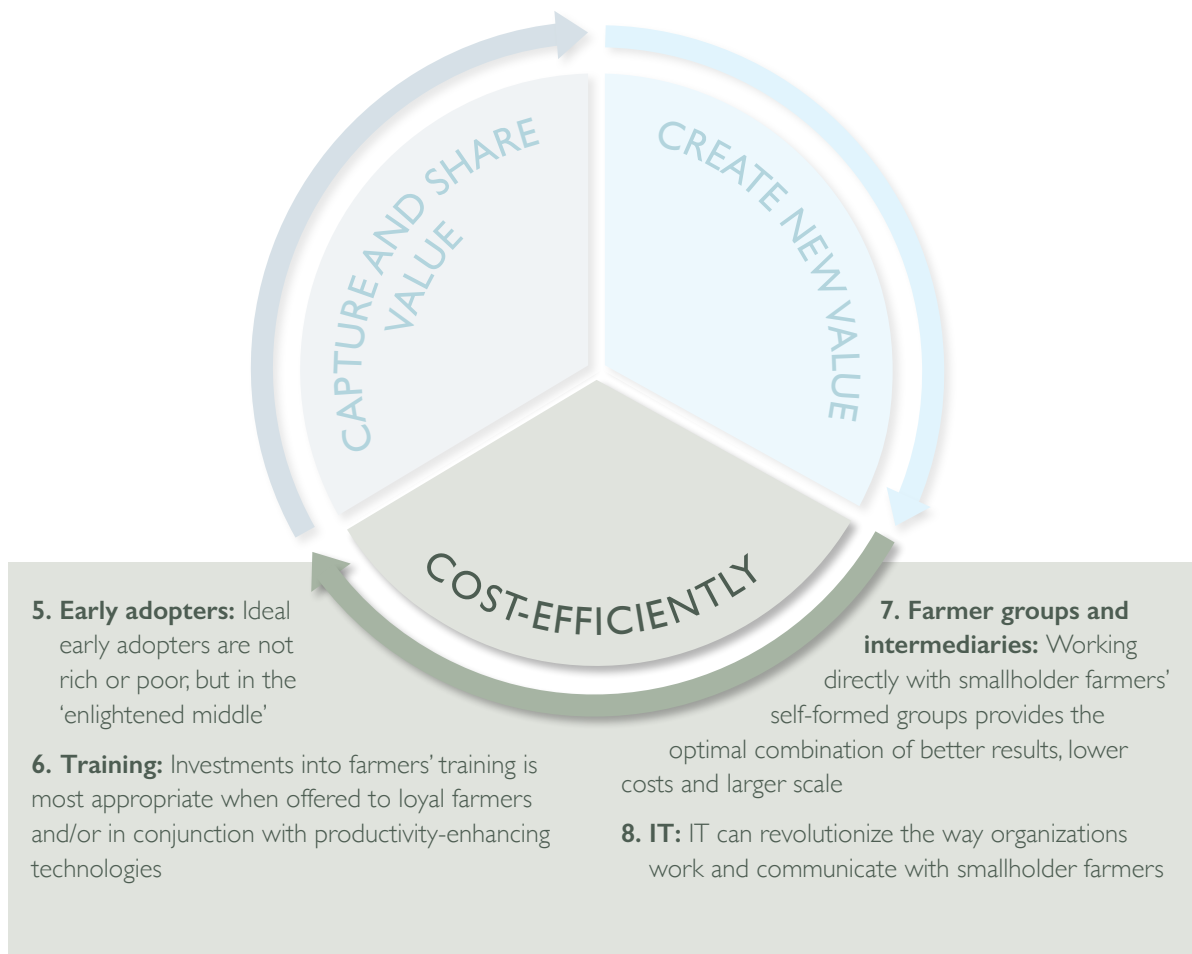
- JAIN offers its onion growers the best of two prices (whichever is higher): the minimum guaranteed price on the day the farmer is enrolled into contract farming or the market price on the day of purchase, letting farmers know in advance the minimum they can expect from their investment in onion seeds.

For export commodities with prices determined on international markets, and in the absence of a stabilization fund or price-fixing policy at the national level, buyers that are not able to offer such price guarantees can still provide more stability to farmers by smoothing out revenues over a harvest cycle. When given the choice, farmers prefer earning a regular income yearlong rather than being paid a lump sum at the time of harvest, even if this means delaying some payments. This is in effect a saving scheme. Such a scheme was set up by buyers such as the Kenya Tea Development Agency, which pays the farmers in two times: each month at a fixed price per kilo of green leaf tea delivered, and then as a lump sum “bonus” at the end of the year, which covers the difference between the payments already made and the market price actually reached minus costs of operations, sales and dividends. Margarita, Biopartenaire and Khyati Foods offer similar arrangements that help farmers become less vulnerable, but also plan their expenses and invest over longer periods of time.

These suggestions should help organizations better handle their relationships with smallholder farmers. And those which are unable to offer adequate safety nets such as those mentioned above should consider not enrolling the more vulnerable farmers altogether.



SECTION 2





5. EARLY ADOPTERS: THE ENLIGHTENED MIDDLE

The ideal “early adopters” who should be the initial focus of an organization working with smallholder farmers are not the richest nor the poorest, but those in the ‘middle’: the farmers who are resilient enough to invest in new practices, crops and technologies, but not prosperous enough to be satisfied with the status quo. These ideal early adopters should also have an entrepreneurial mindset and be well respected within their communities.

The adage goes that smallholder farmers only ‘believe in what they see’, and gradually evolve their practices once they see techniques or products successfully adopted either in the neighbour’s field or at the demonstration plot. Demonstration and word-of-mouth from satisfied early adopters is a powerful tool to enrol more farmers; whereas failures or dissatisfied farmers are sure to spread bad publicity that will slow further expansion locally.

For this reason, organizations working with smallholder farmers should pay attention to the entire adoption life-cycle, and not focus on one-shot product sales or harvest purchase. Sustainably building a large base of clients or contract farmers requires:

1. Identifying the right early adopters and over-investing into their satisfaction and success through tailored and intensive support. We discuss how to identify early adopters in this chapter. Their success should be demonstrable. Nine out of our 15 case studies rely on early adopters to run demonstration plots allowing neighbours to witness first hand the results of their efforts.
2. Cost-effective expansion: once the first farmers’ enrolment has successfully taken place, they help to enrol more and more of their fellow villagers. Operations must then be re-designed for cost-effective scale-up. This is discussed in chapters 6 to 8.
3. Retention of loyal farmers: as most agricultural businesses need farmers to become repeat customers or suppliers, it is essential to find ways to increase their loyalty. This is discussed in chapters 9 to 12.

To return to step 1, who are these early adopters, and how do we identify them?

Smallholder farmers may gain a lot from adopting new agricultural methods and products, but many of them simply cannot afford to try and fail. Where larger farmers may lose their savings with an unwise investment, the poorer farmer may lose his land and put his whole family in misery. Given their vulnerability, smallholder farmers are understandably reluctant to give up the tried-and-true techniques that have served them and their parents in the past.

Yet, early adopters are not necessarily found among the larger, more successful farmers, as the latter may be less keen to change a winning formula, may need less support and so the advantages of adopting a new product or practice may be less attractive to them. Furthermore, our field interviews indicated that poorer farmers may not easily relate to the success of their better-off neighbours. They may think that the richer farmers are successful because they own better fields, machinery or just because they already know how to do it well enough.

The results of our case studies suggest that the most suitable early adopters are likely somewhere in the middle. These smallholder farmers must be resilient and show willingness to try new methods, but not prosperous enough to be satisfied with the status quo. Most importantly, they should be respected individuals with a good reputation and ties to the rest of the community, as well as have an entrepreneurial mindset. Local teachers who also tend their land are often a good candidate, as are individuals with relatively higher education.

A 'poster child' early adopter, Rajendra Hari Patil, teacher and BA-educated, decided to go back to his father's land. He was identified by JAIN for their early adopter programme called 'Krishi Mitra', and as such the first farmer to try JAIN's new banana seedlings in his area. Rajendra tripled his income over a single harvest that year. In 2006, JAIN decided to give him 10,000 banana saplings and to support him to cultivate them. Nearly ten years later, Rajendra is now working on more than 65 acres of land and his recent harvest gave 11 truckloads of bananas in a day. He spontaneously

organized workshops in his village and managed to convince 90% of villagers in his area to follow his lead and take on banana cultivation. In addition to choosing the right 'candidate', JAIN also over-invested into building his capabilities to ensure his success. This positive example allowed JAIN to convince a significant number of new farmers. JAIN also has a 'graduate' programme, called Gram Sevak. This programme recruits young farmers with an agricultural diploma and a few years of experience, puts them on JAIN's payroll and trains them. The graduates are posted in their own village, and their role is to select and enrol new farmers, as well as support them throughout the year.



Rajendra Hari Patil, JAIN early adopter








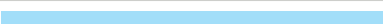
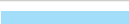



6. TRAINING: WHEN AND HOW

Changing how farmers tend to their field while they have been following ancestral practices for their whole life is no easy task. It requires delivering training in the right way and in the right amount: providing too little will not be sufficient to convince farmers to change and/or may result in misinterpretation or misuse, while providing too much can become very costly.

All our case studies provide training and in-field support, and spend considerable amounts on it: training and technical assistance costs ranged from 4 to 8% for buyers, and 8-10% for sellers (see exhibit below).

Training spend per farmer and sources of training financing

	Training spend per farmer (as % of product bought from farmer or input provider's sales to farmer)	Free training for farmers	Training paid by grants	EBITDA margin
Buyers	Buyer 1  9%	✓	✓	+
	Buyer 2  8%	✓		10%
	Buyer 3  6%	✓		3%
	Buyer 4  5%	✓	✓	-
	Buyer 5  4%	✓		+
	Buyer 6  3%	✓		+
	Buyer 7  1%	✓	✓	-
Input providers	Seller 1  10%	✓	✓	-54%
	Seller 2  5%	✓	✓	-32%
Equipment provider*	Seller 3  8%	✓		15%

* Annualized over lifetime of equipment

None of our case studies charges for the training it provides to farmers. The training is financed in-house (after break-even), or relies on grants (until break-even). Understandably, sellers spend relatively more as they must ensure that farmers make good use of the new products they sell them. Spending less than the lower end of these ranges is likely to be insufficient to properly equip farmers for change, while spending more may weigh too heavily on a company's financials.

But what are the factors that determine whether or not to invest systematically in training farmers? We identified three scenarios:

- Scenario 1: for the case studies bringing productivity-enhancing technologies to farmers, training is a must. These organizations need to make sure that farmers

reap the benefits associated with the introduction of a new technology, become successful, repay the loan they took to invest, and sell more produce or buy more inputs at the next season.

- Scenario 2: for the case studies that do not bring productivity-enhancing technologies to farmers, but which are in a situation of monopoly or where a strong lock-in mechanism is in place that ensures farmers' loyalty, training is a bonus that may benefit both the organization and the farmers. It helps farmers produce more and better quality.¹⁵ For instance, Khyati Foods reaps the full benefits of the training it provides to farmers, as it is the only buyer in the area to offer farmers a premium linked to organic certification.

¹⁵ Of note, among our case studies that offered training and technical assistance that involved changing agricultural practices (but did not involve any technology transfer), training brought an increase in net farmers' income of 8 to 35%.

- Scenario 3: In competitive environments, where farmers display little loyalty, the case for investing systematically into training is less clear. Hoping that training alone will be sufficient to improve farmers' loyalty is illusory. "Good advice" as opposed to more distinctive services is often not enough to convince farmers to remain loyal. These case studies should improve loyalty before spending on training. Disloyal farmers will at best just benefit farmers, and at worse also competitors, while the organization bearing the cost of the training will get limited or no returns on its investment. Biopartenaire for instance, a company sourcing cocoa from over 20,000 smallholder farmers in Ivory Coast, offers training in some areas, and transportation of fresh cocoa from farmers' fields to their house in other areas. This second service – much more valued by farmers – resulted in higher farmer loyalty, while training alone did not appear to have much influence on

who farmers sold to. In this case, the return on this training investment to Biopartenaire is questionable as much of the added productivity and quality also benefits the competition.

With this in mind, another question revolves around the effectiveness of training delivery. Do the levels of training costs or the frequency of delivery matter? The case studies featured here spend between \$9 and \$570 on training, per farmer per year. But the amount spent, or the intensity of training efforts show little correlation with the improved productivity observed. This does not come as a surprise. In previous chapters, we saw that increases in net incomes for farmers were typically linked to the type of intervention at hand (e.g. provision of technology vs. price premium distribution). The type of commodity and the geography also explain why the training costs of some case studies are higher than others.

Level and intensity of training provision compared to farmers' improved productivity levels

	Total yearly training cost* per farmer (\$)	Number of training sessions per farmer per month	Increase in productivity (% over previous situation)
Project 1	570	2	20%
Project 2	150	0.5	75%
Project 3	125	2	80%
Project 4	67	2	35%
Project 5	50	2	8%
Project 6	20	0.2	15%
Project 7	20	0.2	80%
Project 8	19	2	30%
Project 9	9	4	50%

● Training & technology
● Training only

* Includes costs of deployment (e.g. transportation) and salaries of field staff (such as extension officers) spending a large part but not necessarily all of their time providing training and other technical support to farmers

This seems to indicate that it is not the “how much” that matters but the “how”. Through interviews with our case studies, two best practices stood out in that regard.

The first best practice is to deliver training before asking farmers to make an investment into a new product or technology. This way, farmers already see results from changing their practices without any cash investment, and begin to trust the organization’s advice. It also ensures farmers are in the best possible situation to reap all the benefits of their investment, once they make it. For instance, PRAN-Tetra Pak first trains dairy farmers on better cattle management and feeding practices (e.g. continuous water availability, feed selection and vaccination) that can increase cow productivity at little or no cost. Only after farmers have taken these first steps does PRAN-Tetra Pak recommend them to invest into new breeds of cows and expensive equipment such as milking machines.

The second best practice is to provide training on all aspects needed to make farmers successful, not just those related to the organization’s products or crops. The rationale behind this approach is that the more successful the farmers are, the more word of mouth they will generate, and the more successful the organization will be. Both JAIN and BASF Samruddhi, for example, train their farmers not just on the use of their products (micro irrigation for JAIN, crop protection for BASF) but more generally on good agricultural practices and other inputs that will make farmers as successful as possible.

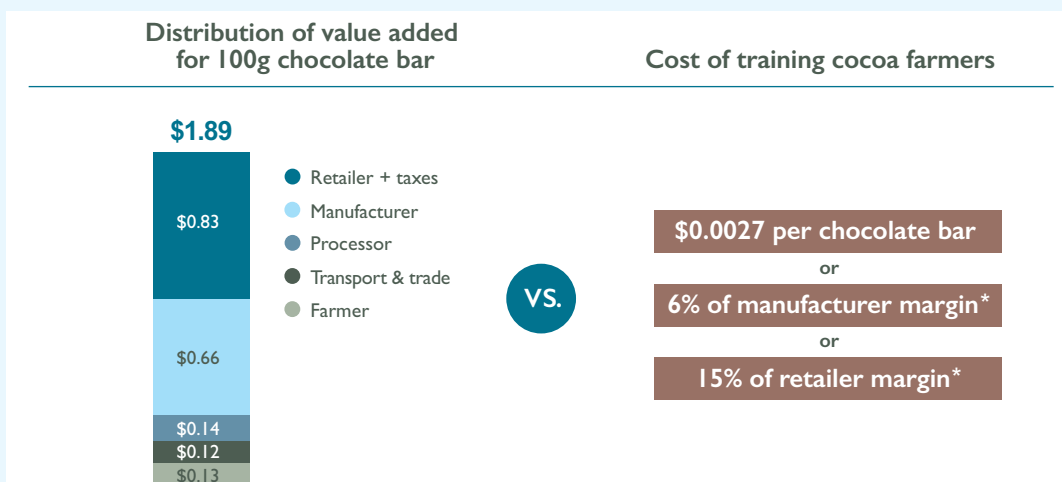
The Kenya Tea Development Agency coordinates large-scale training courses nationwide and devotes 25% of the curriculum to other income-generating activities than tea. This approach helps farmers diversify their income sources and become more resilient, creates trust, and makes sure farmers get the whole benefit of the relationship with the organization.

Is there a role for organizations and companies further down the value chain?

Two of our case studies – Cotton made in Africa and the Kenya Tea Development Agency – offer a platform for companies that do not deal directly with farmers but who manufacture and market the end products (e.g. cotton apparel manufacturers or tea manufacturers respectively). Does it make sense to involve such organizations in improving farmers’ productivity? It may seem that, given the length and complexity of the value chains involved, these companies may struggle to make the business case for them to be involved more directly.

When brought down to the price or profits made on a chocolate bar, the cost of providing training to a farmer, which will significantly increase the quantity and quality of his production, as well as his net income seems little: under 0.1% of the retail price of the end product, and under 6% of the profits made by the manufacturers.

A similar conclusion could be drawn for the cotton garments value chain, where the cost of training farmers relative to the retail price of a t-shirt is a mere 1¢, or 0.8% of the profit margin made by the retailer on the sale of the t-shirt.



* Of note, in the cocoa value chain, it appears that training costs can hardly be borne by processors, as this would represent 47% of their margin, making it even more important for stakeholders further down the value chain to be involved.
Source: Cocoa Barometer 2015. Data from 3 West African countries, 8 traders, 6 manufacturers, 3 retailers.



7. WORK DIRECTLY WITH FARMERS' GROUPS OR LEVERAGE INTERMEDIARIES?

How to cost-efficiently yet effectively reach tens of thousands of farmers? While leveraging intermediaries (individuals or institutions such as cooperatives) may keep costs very low, the advantages of working directly with small groups of farmers are many: low outreach and training costs, better control of operations, higher levels of trust and loyalty, faster growth and reduced risk.

In the previous chapter, we discussed when and how to effectively invest into farmers' training. In this chapter, we look at how to reach farmers in the most cost-efficient manner possible, without compromising the quality of the training or the relationships built with them.

Three approaches are possible: a) reach out directly to individual farmers; b) reach out directly to small groups of 15-30 farmers who come together to work with a case study organization; c) work through local intermediaries (individuals or organizations, such as cooperatives) who in turn deal with the farmers. Our case studies offer an interesting sampling of all three approaches.

Modalities to engage and train farmers

Number of case studies	Type of interaction	Total farmers reached yearly per extension officer
3	Directly to individual farmers	15 - 100
8	To groups of farmers	100 - 500
4	Via intermediaries	400 - 1,000

Each option bears implications as to how many farmers a field or extension officer can serve. While case studies working directly with farmers manage to cover 15-40 farmers per extension officer, those working through intermediaries manage to increase that ratio to 400-1000 farmers. For instance, Biopartenaire sources cocoa from a scattering of smallholder farmers by leveraging a network of intermediary lead farmers, who in turn recruit fellow villagers and source cocoa on Biopartenaire's behalf. These lead farmers are recruited based on their reputation, are trained by Biopartenaire and paid a commission on every kilo of cocoa sourced.

Yet, this cost-efficiency sometimes comes with a trade-off. For Biopartenaire, this low-touch set-up may limit the company's ability to build closer ties with farmers and increase their loyalty. These problems, mostly related to the lack of control and proximity, can be compounded when working with *institutional* intermediaries. This is the experience of Juhudi Kilimo – a social enterprise providing training and loans for productive assets to over 20,000 Kenyan farmers. Initially, existing cooperative banks were leveraged to channel credit to smallholder farmers. Juhudi Kilimo identified Savings And Credit Co-Operatives (SACCOs) as a good channel to deliver credit in a more cost-efficient way to farmers. SACCOs are cooperatives that often own collective infrastructure (e.g., milk chilling plants) and facilitate the accumulation of savings made available as credit to its members. Juhudi Kilimo provided loans directly to farmers, which would be repaid through deductions on milk payments made by the SACCO owning the chilling plant. The SACCO would then repay Juhudi Kilimo each month. Piggybacking on this network of cooperatives allowed Juhudi Kilimo to offer much cheaper credit (1-3% interest per month), repayment rates were

satisfactory and churn rates among SACCOs remained at a low 5%. However, it quickly appeared that many SACCOs were increasingly late in re-paying Juhudi Kilimo, because of poor management systems and weak governance. As a result, Juhudi Kilimo had to discontinue the scheme and go back to offering and managing loans directly, even though this meant higher costs.

Another issue when working with intermediaries (mostly institutional ones, farmer-owned or not) is that of sustainability. Samridhi is a grant-funded project that ended in February 2015. Its exit strategy consisted of turning associations of lead farmers into formal

structures that could take over the market facilitation role of the project, i.e. coordinating partnerships with private companies and local governments, recruiting and training lead farmers, and continuously innovating to meet farmers' needs. Samriddhi helped turn these associations into commercial entities, by introducing membership fees, commissions on the services provided by lead farmers, warehousing fees and equipment rental, as well as commissions from private companies. However, the long-term sustainability of these structures is questionable as they require additional support over time. In 2014, only 21 out of the 58 associations created were considered sustainable, i.e. without continued support from the Samriddhi team. This is also the experience of the East Africa Dairy Development project – an NGO-led initiative developing dairy farming in the region. Most of its dairy partners would need some level of support after the project closes, which is why the project is now launching a national federation in Kenya for instance, and partnering with local authorities to take over support. It also designed a very powerful approach to increase the dairy hubs' sustainability, by helping dairies develop an entire network of businesses and entrepreneurs around the chilling plants, who also use the dairies' payment system (deduction of payment out of milk payslips). This creates effectively both unskilled (e.g. transportation of milk) and skilled (e.g. veterinary services, artificial insemination) employment. The presence of these ancillary businesses triggers a virtuous growth cycle as hubs expand and provide more business to these service providers, who help improve the farmers' productivity (in turn increasing the profitability of the hub).

Half-way between working directly with farmers and leveraging intermediaries, eight case studies decided to work with small groups of farmers (typically between 15 and 30 farmers), who need to come together to avail the services or products offered by the case study (co-opting their members and electing their representatives themselves). This formula allows for relatively low outreach and training costs, as each extension officer covers 100-500 farmers. It also offers additional advantages, including:

- **Reduced risk:** Juhudi Kilimo helps farmers come together in groups of 15-20 farmers whereby each member's loan is guaranteed by the savings of the other members, reducing default rates to only 3%. It also leverages these groups to recruit new members and handle cash collection, reducing its outreach costs even further. Finally, weekly meetings are also a good place to share good agricultural practices among the members.
- **Increased loyalty:** Khyati Foods started enrolling farmers into organic certification by leveraging intermediary organizations grouping ~500 farmers. When this hands-off system failed to ensure the level of loyalty required to complete the 3-year conversion process, Khyati switched to a more hands-on model working with groups of 30 farmers, which built trust and improved penetration and loyalty. It now retains 100% of the farmers.
- **Faster growth:** Empresa de Comercialização Agrícola, a private agro-processing and trading company, works with smallholder Mozambican farmers. They are required to form groups of 15-25 farmers before they can benefit from the out-grower scheme. The scheme includes quality input packages delivered to the farmer's door, attractive credit rates and year-round support. This allowed the company to grow from 900 to 2,200 farmers in its first year of operation: Extension officers often found groups of farmers already formed and waiting when they entered a new village.
- **Train-the-trainer schemes:** The Kenya Tea Development Agency uses farmer groups to roll out trainings at a very large scale: In each tea factory, farmers are trained in classes of 30 led by farmers who have already 'graduated', and supported by extension officers. Farmers graduating from a class are encouraged to start a class of their own under the supervision of an extension officer. Research has shown that the yield increase stemming from this training outweighs its cost, which will be fully borne by the tea factories themselves from 2016 onwards.



FINO, an Indian company creating and implementing financial inclusion solutions, has field agents going door to door in rural areas allowing farmers to conduct IT-enabled financial transactions. As of 2015, FINO has over 28 million active clients. For more information on FINO, see the case study in report "The Broadband Effect" or visit www.finopaytech.com

8. IT: AN ALL-ROUNDER SOLUTION

IT is transforming many sectors – including agriculture – by allowing faster, cheaper and better operations. It provides a closer touch with farmers as well as game-changing solutions that can now spread into remote rural areas.

Until recently, rural areas lacked access to basic agricultural inputs and services. Similarly, sourcing directly from smallholder farmers in remote villages added vast transport and human resource costs to buyers. Finally, rural inhabitants also lacked access to key information, such as crop prices in different markets or weather forecasts. All this contributed to farmers' isolation and impaired rural economic development.

IT is changing all this rapidly, by improving the economics of many players working or looking at expanding into rural areas. Beyond the obvious role that IT can play at any company's headquarters, such as automating administrative tasks, it can improve the performance and experience of both farmers and the field officers who serve them. More specifically, IT allows:

- Farmers to play a role in operations, and lower associated costs: mobile money, where available, allows farmers to pay or receive payments directly on their mobile phones, avoiding the need to have field officers receive and carry cash. In Kenya, where mobile money reaches the vast majority of the population, 40,000 of the 80,000 farmers active with One Acre Fund in 2014, as well as the field agents gathering the money from the other 40,000, all used MPESA (the main Kenyan mobile money provider) for loan repayments.
- Staying in touch with farmers: In Kenya, Juhudi Kilimo conducts yearly sms surveys on client satisfaction. One of the latest surveys, sent out to 10,000 contacts, received 20% responses in less than 2 days. 82% of respondents said they would recommend the company to others. This also makes it easier to follow up with those who have complaints. Juhudi Kilimo has also tested sending payment reminders to its clients, which successfully increased 0-delay repayment rates
- Access to advice and support for farmers in a more cost-effective way: for example, BASF Samruddhi programme in India set up a call centre that

proactively reaches out to farmers no longer directly supported by field officers, to continue support at key planting times. Providing this light-touch support is at the heart of other agro-projects: Reuters Market Light offers an sms package to farmers (also available as a smartphone app) with daily advice on best agro-practices, weather data, as well as price information at farmers' closest markets.¹⁶ Honey Care Africa - a social business that sets up, maintains and harvests the hives of 2,700 smallholder farmers in Kenya - leverages IT to identify the best performing farmers and have field officers capture their best practices (including photos) on their mobile devices. This data is consolidated and shared between all field officers, who can in turn share them with all Honey Care Africa farmers.

- Support for field officers on a day-to-day basis: IT makes data capture paperless and easier to share and monitor. For instance, Juhudi Kilimo loan officers capture and store real-time client data on their tablet. This allows to process loan applications within 6 days, which has greatly improved client satisfaction and is now a key competitive advantage for the company. It also helps track and manage loan officers' performance (with rapid feedback if they are not reaching their targets) and client repayment rates. Honey Care Africa has developed a mobile app coupled with GPS tracking, which allows its field staff to collect farmers' data, keep track of their visits, and inform farmers of upcoming visits as well as work needed on the hives via sms. This system allows an optimal deployment of the field staff, saving on otherwise high transportation costs.

IT is also making new breakthroughs possible. The provision of micro-insurance in rural areas is a perfect example. Offering crop or weather insurance to smallholder farmers was – until not so long ago – a complex and costly endeavour due to the need for in-person due diligence (to assess insurance amounts and handle pay-outs in case of adverse events). However, as we will see in chapter 11, it makes sense to protect

¹⁶ See more information on Reuters Market Light and similar programmes in Hystra's report "Leveraging ICT for the BoP" (2011): www.hystra.com/leveraging-ict

farmers against these adverse events. In Kenya and Rwanda, the Agriculture and Climate Risk Enterprise (ACRE - previously name Kilimo Salama) now uses GPRS weather stations and automated indices to remotely monitor adverse weather events and mobile money to automate pay-outs. This has dramatically streamlined requirements and processes to the point where serving smallholder farmers has become sustainable. In 2013, the scheme insured over \$25m for 185,000 farmers.¹⁷

Understandably, all these models are only possible in areas with a high enough penetration of both adequate IT devices and sufficient network, at acceptable costs. But close to 45% of the developing world population had a mobile subscription at the end of 2014, and this number is expected to grow to 56% by 2020. Broadband coverage is increasing and smartphones are gaining market shares in the developing world too.¹⁸ It is only a matter of time until these IT tools become accessible in many more parts of the developing world.

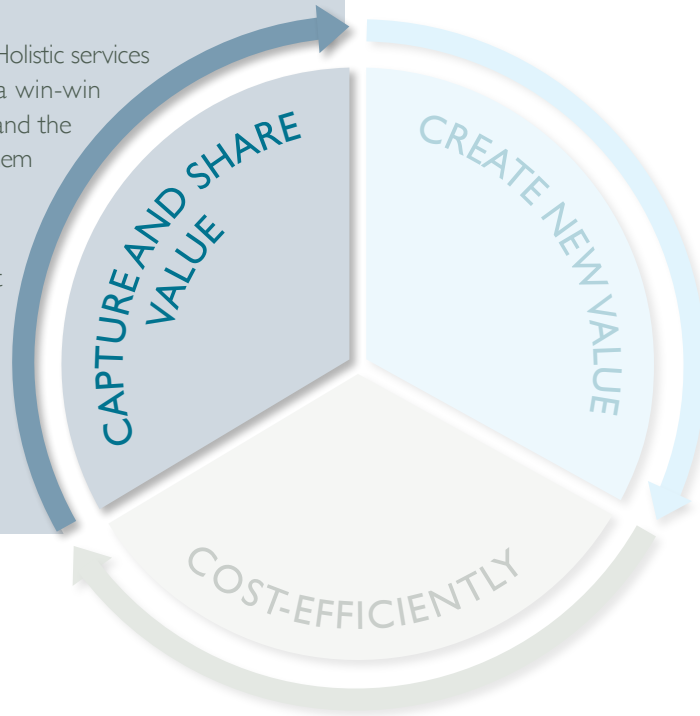


¹⁷ Find more information on this company, other connectivity-driven projects and how broadband is spreading in developing countries, see Hystra report "The Broadband Effect: Enhancing Market Based solutions for the BoP" (2014): www.hystra.com/broadband.

¹⁸ www.gsmamobileeconomy.com/GSMA_Global_Mobile_Economy_Report_2015.pdf

SECTION 3

9. **Loyalty:** Understanding what leads farmers to 'default' or 'leave' is essential to build successful longer-term business relationships
10. **Rewards and penalties for loyalty:** Well-crafted reward and penalty schemes can help improve farmers' loyalty over time
11. **Financing:** Lending to smallholder farmers is challenging, but several best practices enable organizations to do so ethically and efficiently
12. **Value chain integration:** Holistic services and product provision is a win-win strategy for both farmers and the organizations working with them
13. **Cooperatives**
Cooperatives do not have any intrinsic advantage that results in them generating greater value, better outcomes, or higher loyalty among farmers than other business-type intermediaries





9. WHY SOME FARMERS ARE MORE LOYAL THAN OTHERS

Farmer loyalty behaviour to our case study organizations varies considerably. Understanding what leads them to ‘default’ (i.e. not respect their engagements by side-selling or defaulting on loan repayment) or ‘leave’ (i.e. not sign up for another season) is essential to pave the way for stronger and longer-term relationships with the organizations serving them.

Recruiting and training a farmer is a significant investment whose return depends on the loyalty of the farmer, measured either by farmers’ respect of their engagement (e.g. no side-selling, on-time repayment of loans), or by farmers’ continued involvement with the organization working with them (i.e. limited churn rates).

Looking at our selection of case studies, there are wide variations in terms of farmers’ loyalty behaviour. In about half of the cases, farmers are “loyal”, i.e. they both respect their engagement throughout the year and stay with the case study organization year after year. That translates into side-selling and churn rates under 5%.

In the other half of the case studies, the picture is less rosy. Farmers’ behaviours could be coined as:

- “Defaulters”: with churn rates at or under 5%, but side-selling/default rates above 10%, those farmers keep working with the case study organization but default regularly – either by side-selling or not repaying their loan
- “Leavers”: an unfortunate situation where farmers respect their engagements, but end up dropping out from the case study’s intervention (churn rate above 20%)
- “Opportunists”: with churn rate above 10% and side-selling/default rate above 30%, these farmers switch between crops and organizations following price variations, within seasons and at the end of the year:

Farmer loyalty behaviours

Loyalty behavior of farmers		Respect of engagement (loan repayment rate, or selling within contract)	Farmers loyalty to organization over time (repeat business)
Loyal	Project 1	95%	94%
	Project 2	95%	95%
	Project 3	100%	NA
	Project 4	100%	97%
	Project 5	100%	95%*
Defaulter	Project 6	70%*	95%*
	Project 7	90%	95%
Leaver	Project 10	100%	80%
Opportunist	Project 8	70%	90%
	Project 9	70%*	90%*

For the 5 case studies with loyalty issues, this situation translates into a significant drain on operations and resources. It is therefore essential for them (and other organizations facing similar issues) to understand the drivers behind farmers’ behaviour.

Farmers’ loyalty behaviour is obviously not driven by their character or morality, but rather by circumstances.

First, what reasons drive farmers to leave? These mostly relate to the value proposition offered by the case study. Successful smallholder farmers are likely to grow. Companies must make sure they cater to the needs of farmers as they progress, to avoid 'failing' the best ones. If the benefits offered to farmers get less attractive year after year, churn will likely increase. This can be exemplified through a comparison between two loan providers, One Acre Fund and Juhudi Kilimo:

- One Acre Fund sells inputs on credit as a package to its clients. To control the average indebtedness of its clients, One Acre Fund has capped its loans at \$200. Many farmers choose to re-enrol in the programme season after season because they value the package that One Acre Fund offers. But some 20% pull out as they no longer need the credit to buy their inputs for the next season, or because they seek larger credit amounts. Going forward, One Acre Fund is exploring the use of credit scoring to allow farmers who have been with the programme for multiple seasons and who have strong repayment track records to take on larger loans.
- In contrast, Juhudi Kilimo increases loans progressively as farmers grow, reassessing a farmer's debt capacity at each level. Starting with loans capped at ~\$700, farmers can apply for up to the double at each successful full repayment and up to over ~\$6000. Every loan goes through a new credit appraisal and acceptance is not automatic. It also offers top-up loans for energy devices (such as solar lanterns and improved cookstoves) to its most loyal clients. This allows them to keep the churn rate at just 5%.

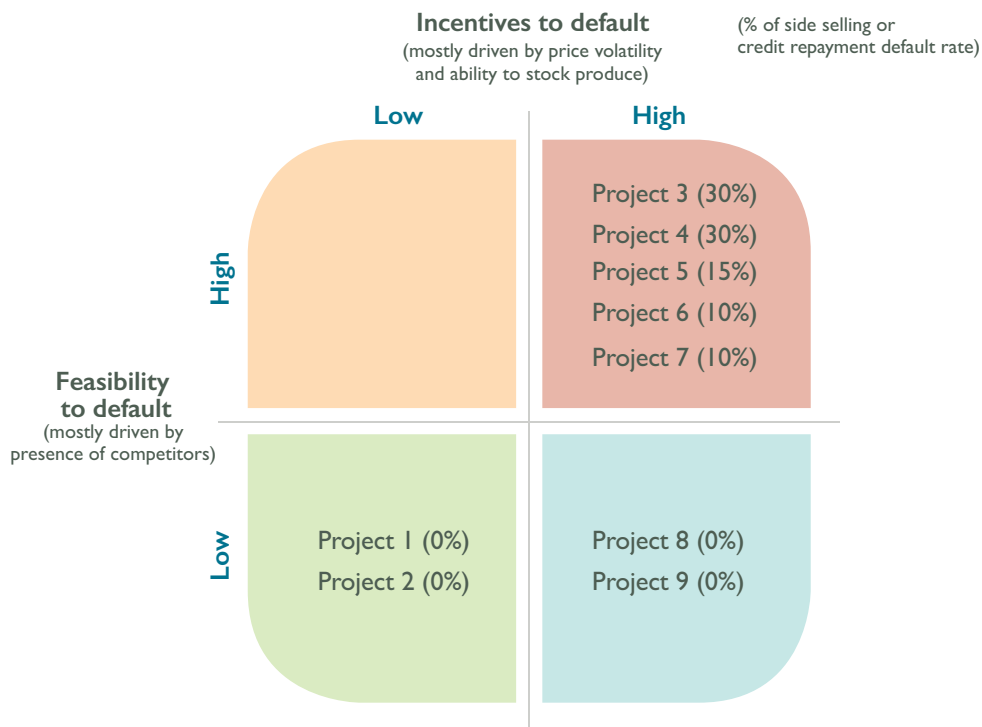
High churn rates are therefore often explained by the organization's value proposition, rather than external circumstances. So by adapting the organization's offer to the more loyal and successful clients' needs, the churn rate can be maintained below 5% (as we see from the case studies above). Organizations experiencing high churn rates are missing out on many opportunities: lowering the churn rate not only improves the bottom line (thanks to lower acquisition and training costs), but also the top line as the organization grows along with its clients. By helping

smallholder farmers grow, step by step, organizations will achieve greater loyalty through better livelihoods and higher resilience.

The reasons that drive farmers to default are essentially different. To engage in side-selling or not to repay a loan, a farmer must have both the possibility and incentives to do so.

- Feasibility: For instance, PRAN-Tetra Pak has succeeded in creating a dense enough network of milk collection centres to have most small cattle owners conveniently deliver even small quantities of milk. In the absence of any other competing network offering a similarly convenient and consistent value proposition, PRAN-Tetra Pak's side-selling rate stands virtually at 0%.
- Incentives: Farmers dealing in crops that cannot be stored and handled easily are more prone to side-selling. In this case, harvested crops get spoilt or stolen if farmers do not sell it off quickly. If the buyer is not at the farmers' door on time, the harvest will be sold to competitors, sometimes even at a lower price. Biopartenaire sometimes loses part of the produce of its contracted farmers to other traders who manage to reach the farms before it does, even though farmers know that these other traders will often cheat them when weighing the cocoa beans. Important price variations also create arbitrage opportunities for farmers to favour one buyer over another. In East Africa, when droughts occur, milk production plummets, as most of the cattle still relies on grazing. This causes the price of milk to rise steeply on the local informal market. Some informal traders take advantage of this situation by offering higher prices to farmers otherwise supplying dairies such as those supported by the East African Dairy Development initiative. In those cases, these dairies experience important peaks of side-selling.

What drives farmers to 'default'?



As we can see, 'defaulting' is mostly driven by external circumstances. For organizations working in such environments, this translates into lower profitability, as the farmers they train or give credit to end up selling to competition or not paying back their loan at all. This sometimes leads to a vicious cycle of opportunistic behaviour on both the farmers' and the company's sides: companies invest less and less into farmers, as this does not bring the expected returns on their investment, resulting in reduced quality and lower production volumes, and even more opportunistic behaviour among farmers, as companies then increasingly compete on price.

Now that we have a better understanding of what drives farmers' loyalty behaviour, we will discuss possible avenues to address high side-selling rates (chapter 9) and high default rates on credit repayment (chapter 10).



10. REWARDS AND PENALTIES TO IMPROVE FARMER LOYALTY

For organizations that source a significant share of their supply from smallholder farmers, ensuring that they do not side-sell is a question of life or death. Such organizations should use both rewards to incentivize farmers to respect their engagement, and penalties to dissuade them from not doing so.

Keeping side-selling low is essential for buyers of produce: after investing a lot in training and supporting farmers, they want to make sure that they are the ones reaping the benefits from these investments, i.e. that farmers sell the better quality, higher volume harvests to them exclusively. As we can see from the performance of our case studies in chapter 8, side selling can be kept below 10%. For crops with high post-harvest value-add (e.g., coffee or cocoa), up to 30% can be acceptable from a financial point of view, although the economics would obviously look better with lower side-selling rates.

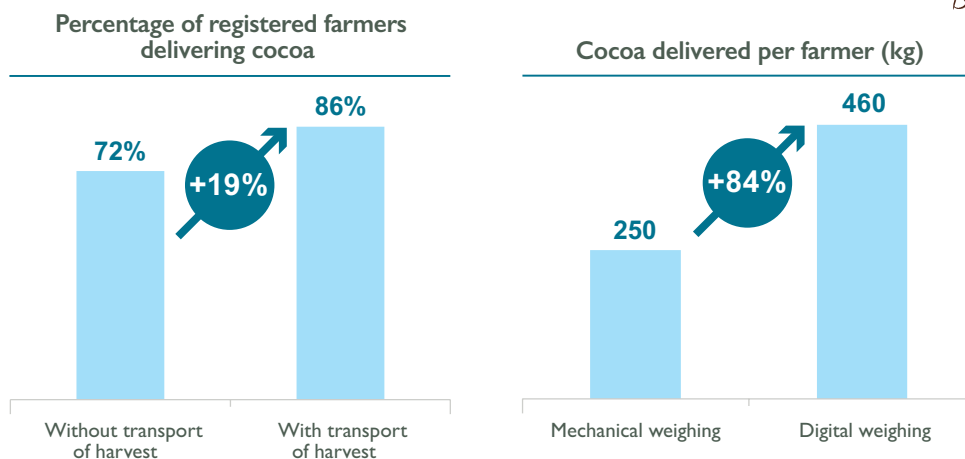
Organizations experiencing high levels of side-selling often operate in difficult environments, with tough business competition, ineffective value chains and high price volatility. Yet, they can gain more loyalty among their farmers by applying the right mix of rewards and penalties. Rewards increase the value offered to farmers, or consist in services they value most. Lower levels of side-selling were observed with case studies that provided a mix or all of the following:

- Some form of minimum price guarantee or some level of price stability that allows farmers to plan and invest. This is what Margarita offers for instance. Within the stable commercial relationship it has with farmers, it ensures more income security to

their farmers who may otherwise be exposed to highly volatile prices, by transparently defining set prices at the beginning of the year. Prices are not reduced nor volume quotas established in seasons of excess production – which is widespread practice among other intermediaries. This gives farmers the assurance of a steady income throughout the year. With this added visibility, farmers have the opportunity to invest for the long-term and thus progressively enhance their living standards.

- Convenience: Being there when and as the farmers need it can make a big difference. For instance, Ivory Coast cocoa farmers often sell their harvests to the first traders who get to the farm gate and help them transport fresh beans from the field to their home for drying. Even if some of these buyers might cheat farmers when weighing their beans, they take all other worries away in terms of possible theft, spoiling or transport arrangements. Biopartenaire has observed that the proportion of farmers delivering cocoa is higher in villages where it provides trucks to pick up fresh beans straight from the field. Similarly, providing digital weighing – a precise, transparent and hassle-free way to transact with farmers – also improved loyalty.

Convenience and transparency can drive loyalty and reduce side-selling



- Exclusive access to valued technology or inputs e.g. fertilizers or veterinary services otherwise not available. An example of this is JAIN's 'onion package', which gives farmers access to onion seeds that have higher solid content and hence fetch higher prices, as JAIN buys those for dehydrated food processing. JAIN manages to keep side-selling at 0%.

What about the provision of credit or technical assistance as incentives designed to improve farmers' loyalty? Providing credit (or inputs on credit) and training to loyal farmers as an extra service and reward makes business sense as buyers are well placed to assess farmers' credit worthiness and buy larger volumes from them. However, as also discussed in chapters 5 and 11, such incentives do not improve farmers' loyalty if they do not already value the company's value proposition enough. An example of that is Biopartenaire, which tried to provide inputs on credit to all its cocoa farmers, including newly registered ones, as a loyalty incentive. In some cases this actually increased side selling: farmers chose to sell their beans to other buyers, who would not deduct a loan amount from their bean sales. As these farmers had not been long enough with Biopartenaire, they did not see the long-term benefits of working with the company, opting to maximize their immediate profit.

Now that we discussed rewards and incentives, let us look into penalties against farmers who side-sell or do not respect their commitments. While often more difficult to implement, penalties can improve loyalty when they result in farmers losing something they value substantially. Margarita's saving program is a case in point: at the end of the year, farmers receive an extra payment that accrues with every litre of milk sold during the year, like a savings mechanism building up for expenses incurred with year-end festivities. Farmers are aware that if they leave Margarita before the end of the year or are not full filling the requirements (quality, safety...), they will not receive their bonus. From an external perspective, this compliance with the commitment mechanism is a way to guarantee a transparent relationship with clear "rights and duties" for each party involved. The redistribution of the amount saved is really beneficial to farmers in times of specific need. This method has proven its efficiency with satisfied farmers and an exemplary loyalty into the project compared to previous years, knowing that Margarita can easily find other farmers to source from. Margarita keeps now side-selling close to zero.





11. HOW TO LEND TO FARMERS PROFITABLY AND ETHICALLY

Although access to credit is a powerful tool to support smallholder farmers, providing it profitably without trapping them in exploitative debt, while ensuring high levels of repayment, may be challenging. Several best practices can help do so.

It is by extending credit to cash-poor farmers that some ruthless intermediaries have managed to exploit them generation after generation. They extend loans to farmers at the beginning of the season when they have no other option to buy inputs, forcing them to pay very high interest rates and/or sell their produce at a low price to pay back the loan.

Organizations that want to sell assets or inputs to farmers may also need or want to extend credit to farmers. Provided their farmers are loyal,¹⁹ they can do so ethically, while minimizing defaults and keeping operation costs low.

The single most important best practice is to design repayment schedules that match farmers' cash flow. All of our case studies that extend credit to farmers and record less than 5% default rates do so.

For instance, Juhudi Kilimo provides a 2-month grace period for its dairy cow loans, to account for some lead time in having the cows fully productive. One Acre Fund offers farmers flexible loan repayment schedules. Full loan repayment is only required after the harvest is done, but farmers are encouraged to pay small amounts, whenever they can over the course of the season. JAIN's financial arm, SAFL, offers loans whose repayment schedule matches the production cycle of the assets or inputs purchased: loans to dairy farmers are paid in monthly instalments, whereas loan repayments for cotton farmers is done every 6 months and banana farmers pay back annually. Margarita, Danone Mexico and Technoserve's sustainable milk sourcing scheme, and the Kenya Tea Development Agency deduct the loan repayments from the payment done upon delivery of the produce.

Smallholder lending best practices in light of repayment rates

	Cash-flow tailored to repayment schedule	Group lending (co-guaranteeing members)	Bundled insurance	Prepayments prior to loan	Repayment rate
Project 1	✓	✓	✓	✓	95-98%
Project 2	✓	✓	✓	✓	95-97%
Project 3	✓	✓	✓	✗	100%
Project 4	✓	✗	✗	✓	100%
Project 5	✓	✗	✗	✗	100%
Project 6	✓	✗	✗	✗	90-98%
Project 7	✗	✓	✗	✗	Low

¹⁹ Just like training, credit is not enough to incentivize disloyal farmers who do not value the company's value proposition enough otherwise (see chapter 10), and should therefore not be proposed in communities or to farmers with high side-selling rates.

Other commonly used best practices that contribute to strong repayment performance include:

- Group lending where members act as co-guarantors: One Acre Fund, Empresa de Comercialização Agrícola and Juhudi Kilimo require their clients to form groups to receive credit. Each group selects its own leader and members, and is jointly responsible for covering the loan amount if any member defaults. In the case of One Acre Fund, groups have a 2-week grace period to complete repayment. If a single farmer defaults, the whole group becomes ineligible to re-enrol the following year, creating a strong solidarity incentive.
- Prepayments before granting the loan: Juhudi Kilimo requires that each member saves at least 15% of the loan amount, before granting them a loan. One Acre Fund clients must pay a symbolic amount before registering their loan request, and then must pay a fixed pre-payment upfront before accessing the loan. In Kenya, about 30% of pre-registered farmers drop out as a result of not complying with these conditions. One Acre Fund has found that prepayment requirements are an excellent indicator of the farmers' commitment and capacity to repay: the organization achieved a 100% repayment rate in Kenya in 2014.
- Bundle insurance with your loan: weather, health and death insurances allow addressing at least part of the situations that may lead a farmer to default. The bundling makes sense for both the farmers, who will be covered in case of adverse external circumstances and for lending institutions who get covered as well. Both Juhudi Kilimo and One Acre Fund bundle a mandatory 4% fee in their loans to pay for these insurances.



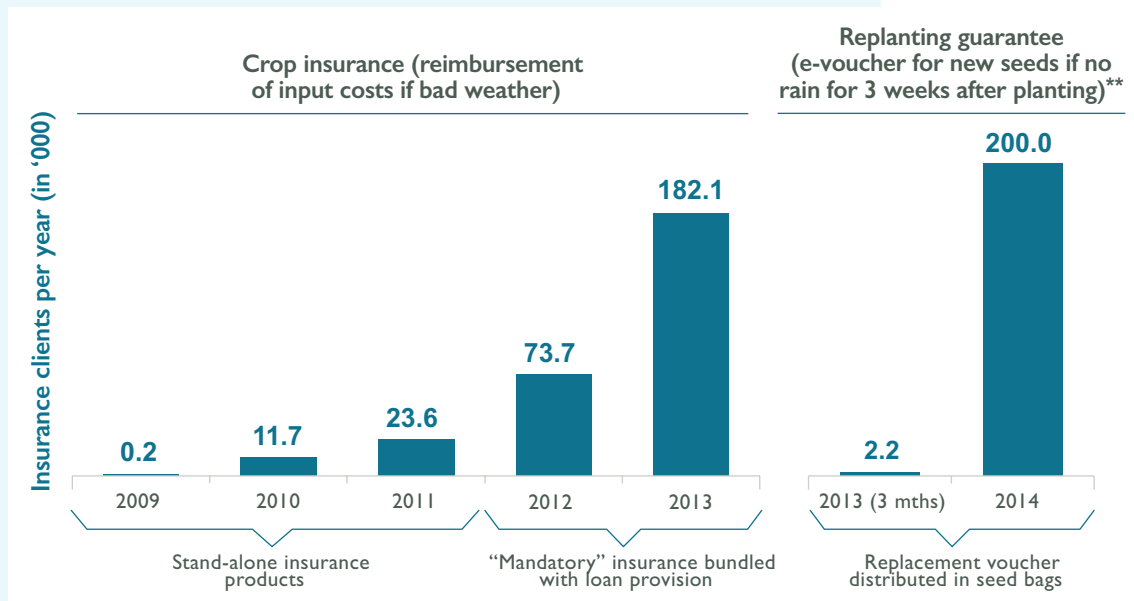
Bundling of insurance with loans or sales of inputs on credit: a powerful tool to distribute micro-insurance at scale and at lower-cost

While it may be difficult and costly to sell a micro-insurance product to a farmer individually, it is often an easier task when bundled with other goods or services. And the bundling can be done for limited additional costs to the farmers, given that the expense of actually distributing the insurance goes down dramatically, as the crop dealers or micro-credit organization aggregate the clients for the insurer.

This is well exemplified by Kilimo Salama, a project initiated by the Syngenta Foundation, then turned into an independent social business (called Agriculture and Climate Risk Enterprise - ACRE) in 2014.²⁰ From 2009 to 2011, it offered crop insurance as a stand-alone product which reimbursed the cost of inputs directly to farmers in case of bad weather. In three years of operation, it had sold 23,000

contracts. However, when it bundled their product with loans provided by third party micro-finance institutions, sales rose to nearly 74,000 in 2012 and over 180,000 in 2013. As a result, Kilimo Salama does not sell their products directly anymore but works through intermediary institutions instead. In a project it pilots with input traders since 2013, ACRE places insurance vouchers in seed bags. The voucher allows farmers to go to the input store and get a new bag if it does not rain in the three weeks after planting. In this scheme, sales grew from 0 to 200,000 clients in a bit more than a year, with input sales increasing significantly. Farmers – who might have been reluctant to pay for a stand-alone insurance, now get systematically covered against adverse meteorological conditions, for a tiny fee already factored into the price of the bag of seeds.

Bundling micro-insurance with loans and products allows for faster growth of insurance coverage, at lower cost



2014 figures are forecasts as of December 2013

²⁰ See case study in Hystra report «The Broadband effect : Enhancing market-based solutions for the BoP» (2014), available on www.hystra.com/broadband



12. OFFERING A WIDER RANGE OF BENEFITS TO FARMERS TO INCREASE LOYALTY

Another strategy to ensure higher farmer loyalty is to propose a distinctive range of products and services, making the offer too hard to beat. This strategy brings a wide range of benefits to farmers, and more income streams to the organizations offering them.

Three of our case studies provide such a wide range of benefits to farmers that they have become essential to these farmers' success, as much as these farmers are essential to theirs. As a result, farmers choose to work repeatedly with these organizations, often investing every year more into the services and products proposed. In all these cases, both farmers and the case studies have made significant investments to make this work: smallholder farmers have invested in productivity-enhancing assets or inputs while the organizations offer a distinctive, holistic and varied suite of products and services. Repeat business over time serves both sides well and strengthens the relationship even further.

We discuss below the three value creation strategies adopted by our case studies. The relevance of their approach is also corroborated by a World Bank study, which notes that "successful projects address farmer constraints along the whole value chain," thus

underscoring the efficacy of integrated approaches to service provision for smallholder farmers.²¹

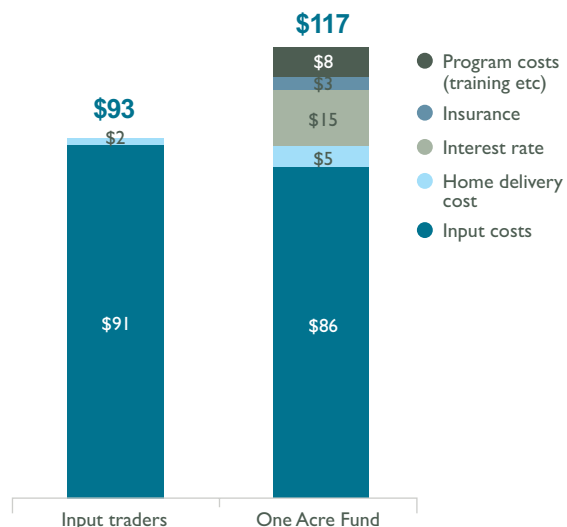
1) One Acre Fund does so by offering a distinctive and *holistic solution* which can solve many of farmers' issues at once. It proposes a comprehensive service bundle which includes inputs on credit, training to maximize productivity, crop and life insurance, as well as market access, all delivered at the farmers' doorstep. Moreover, inputs are delivered at the time of planting and farmers are offered flexible repayment terms. Farmers value the package and are willing to pay more than what they used to pay to traditional input traders. With this scheme, One Acre Fund has laid the foundation for a virtuous cycle whereby farmers increase their productivity and incomes and thus remain loyal to the organization, which can in turn offer them even more comprehensive services. This strategy should ultimately ensure that One Acre Fund becomes less and less reliant on grants for its operations.

Increasing value to farmers through holistic solutions to become more relevant to them



Price comparison of input package for 1 acre

2014 results (Kenya)



- Over 80,000 farmers paid a premium for a holistic bundle including:
 - Certified quality inputs
 - Delivery at time of planting
 - Training
 - Flexible payment terms
 - Crop and death insurance
- » 100% repayment rate

21 Nankhuni et al., op. cit.

2) Another strategy is to offer a *wide suite of products and services* to the farmers. Sirikwa Dairies & General Limited, a dairy hub supported by the East Africa Dairy Development project does exactly that. In addition to buying, bulking, chilling and marketing milk, it also provides veterinary and artificial insemination services, financial services, training, solar lights, as well as fodder and improved buckets for milk collection. It also diversified into maize farming, by selling maize seeds and buying the harvests from the same dairy farmers. Farmers increased their annual revenues by \$280 and became more resilient as they diversified their sources of income. And Sirikwa Dairies generated a \$1.4m turnover in 2014, 22% of which is coming from extra-dairy activities.

3) A third approach consists of integrating progressively into the whole value chain, first investing into acquiring farmers' trust on a given activity, then capitalizing on a loyal client base to seize new business opportunities. This is what JAIN did. With the support of government subsidies, it started to sell micro-irrigation systems in 1988, coupled with extensive training prior to and after the sale. Realizing it could capture a sizeable margin from processing and trading selected crops, JAIN invested into its own factories to produce dehydrated onions and vegetables for export. To have farmers reap the full benefits of their irrigation systems, the organization also started producing and selling improved onion seeds, tissue cultures and banana seedlings. They eventually moved into contract farming, buying harvests at a guaranteed minimum price or market price (whichever is higher on the day). The organic waste of the factories is now also used in a biogas generation plant that powers JAIN's processing plants and transforms waste into manure. The manure is then sold back to farmers as soil conditioner. This laid the foundation to a virtuous cycle whereby JAIN creates more value and opportunities for farmers across the value chain (many of its 200,000 farmers increase their yearly income by \$500-4000), grows its top line per farmer, but also reduces its operating costs by bundling its various projects. JAIN had \$1b in turnover in 2014, about half of which related to its activities with smallholder farmers.



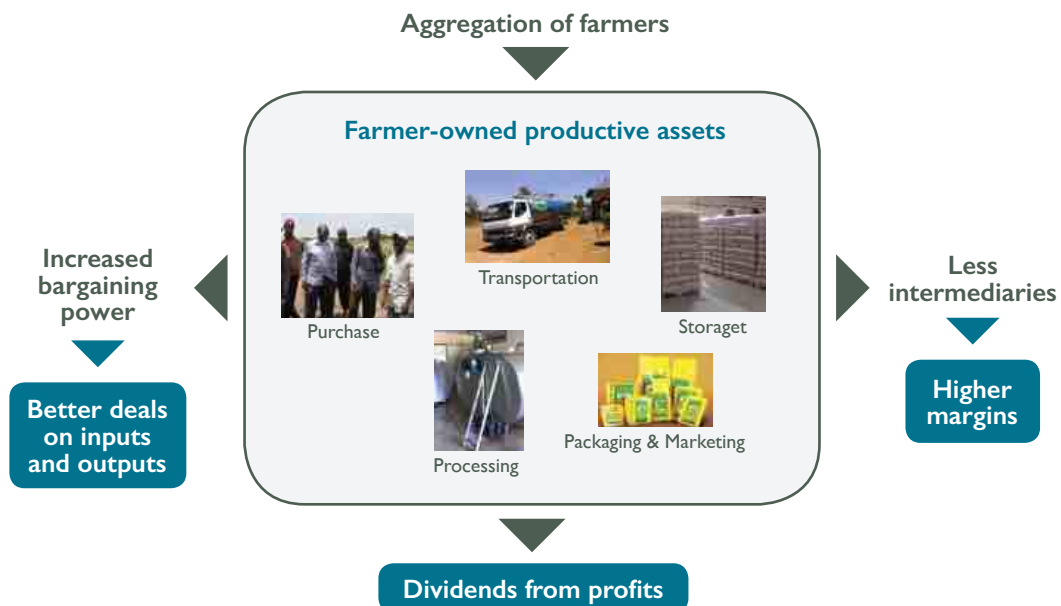


13. FARMERS' DEPENDENCY AND THE ROLE OF COOPERATIVES

When farmers are dependent on the organization that sells to or purchases from them, while the latter is not necessarily committed to help them grow and thrive, the situation is untenable. Cooperatives are constructed to be 'benevolent' organizations. But are farmers better off in this case? Early evidence from our case studies challenges this view.

In chapters 10, 11 and 12, we discuss various strategies to improve farmers' loyalty to a given organization. But what about cases (and none of our case studies is representative of that) where farmers are reliant on an organization that is not necessarily committed to help them thrive in the best possible way? We wanted to understand whether working with cooperatives²² helped ensure that farmers dealt with a more 'benevolent' intermediary, which would optimally protect their interests.

The role of cooperatives



To answer this question we compared the performance of the 4 case studies of this report run by or involving farmer-owned organizations, against the 11 others, on the following questions:

- Do cooperatives create and capture more value in the chain than other types of organizations?
- Do cooperatives redistribute more of the value created to farmers?
- Are farmers more loyal to cooperatives over other types of organizations?

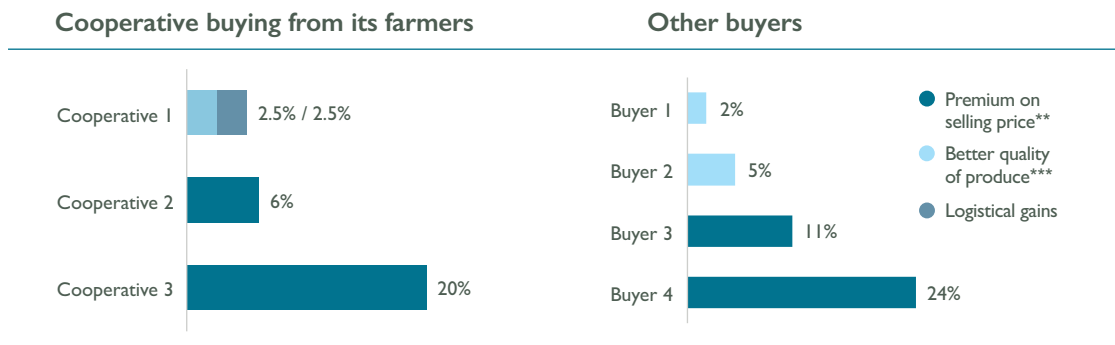
While the sample used is very limited to draw any definitive conclusion, the results tend to suggest that

cooperatives have no intrinsic qualities that would make them better partners for farmers than traditional businesses.

First, our cooperative-led case studies do not create significantly more value when they buy from their member farmers than other types of buyers (5-20% additional net margins for cooperatives vs. 2-24% in the case of other types of organizations). Their performance in this regard seems more related to the professionalism of their operations and their ability to negotiate off-taker agreements favourably, than their specific legal and governance form.

²² Cooperatives are broadly defined here as farmer-owned organizations aggregating farmers and playing the role of an intermediary vis-à-vis other players in the value chain. Cooperatives – as understood in this chapter – correspond to the institutional intermediaries of chapter 7 (as opposed to farmer groups).

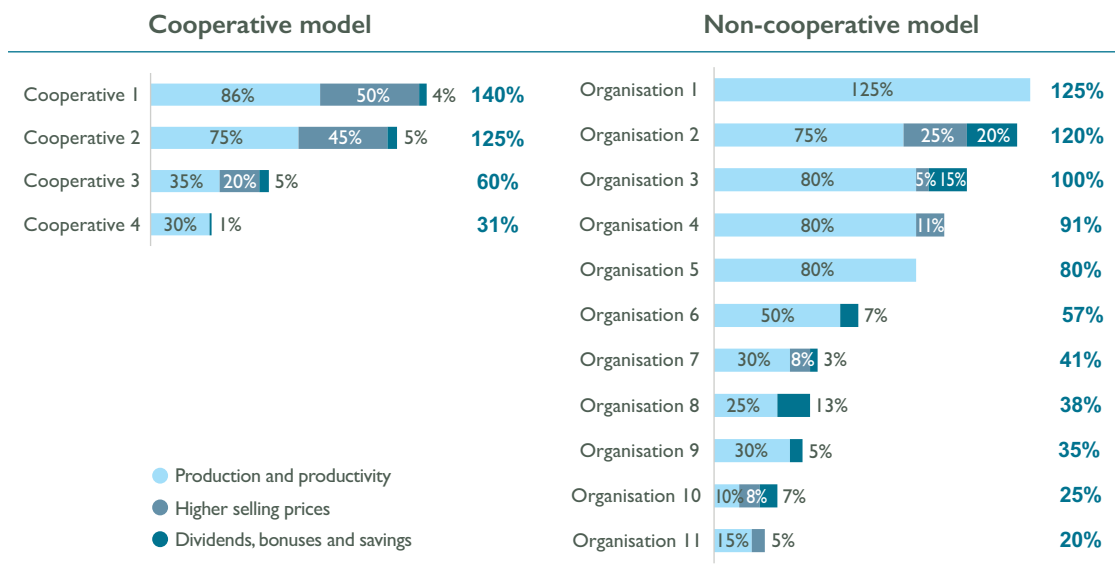
Additional net margins generated for buyer out of the sales of farmers' produce* (as % of sales)



* On top of margins made at the processing plant or dairy hub level
 ** Premium on price of product sold
 *** Better quality of produce collected from farmers, yielding higher returns in processing

Second, based on our sample, cooperatives do not seem to share significantly more of the value they helped create, back with member farmers than other organizations (31% to 140% net income increase for cooperative member farmers, vs. 20-125% for other organizations).

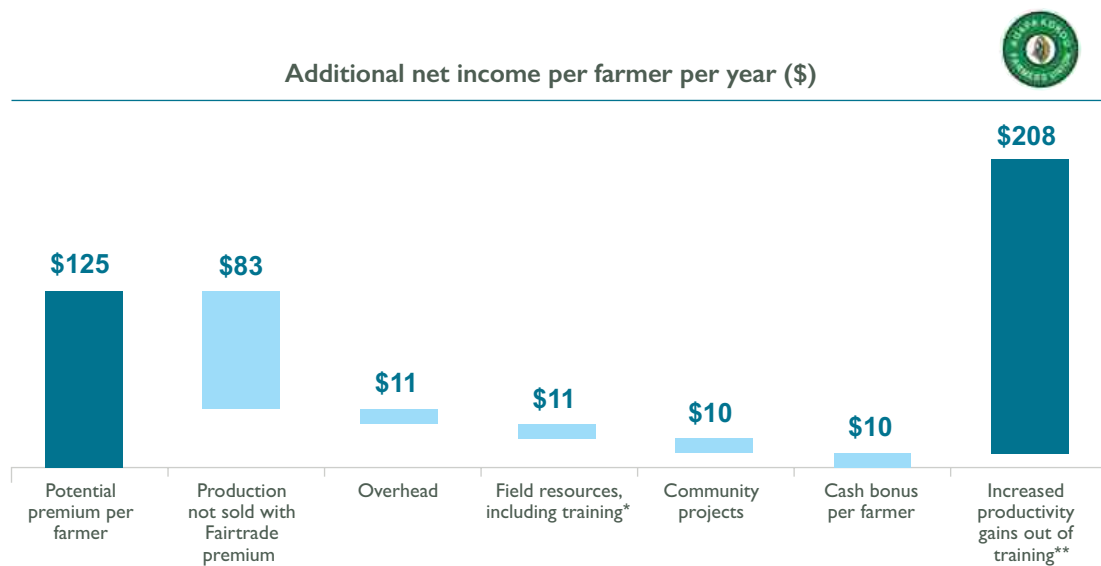
Increase in farmer net income (%)



This can be explained by the fact that the biggest driver to increase farmers' incomes is improving their productivity (notably through the provision of technology). If a cooperative does not provide such services or products, the farmers will likely earn relatively less. Second, while cooperatives share back bonuses and dividends with their farmers, and may capture some value by replacing certain intermediaries,²³ such benefits typically only represent a few percentage points of the farmers' net income increase, once redistributed among all members.

All that said, we can also see that two cooperatives manage to score very high, notably thanks to offering higher prices to their farmers. While inspiring, this may be difficult to achieve in practice across the board, as we can see from the Kuapa Kokoo Farmer Union case, which is a cooperative that is almost completely integrated from farm to shelf. It sells Fairtrade-certified cocoa (partly through its own chocolate manufacturer Divine Chocolate) and reinvests the premium earned into its 100,000 members and their communities.

Impact of Fairtrade premium vs. investments into field productivity



* Cost of training: \$20 per farmer per year, covered by the Fairtrade premium (around 50% of farmers are trained so far)

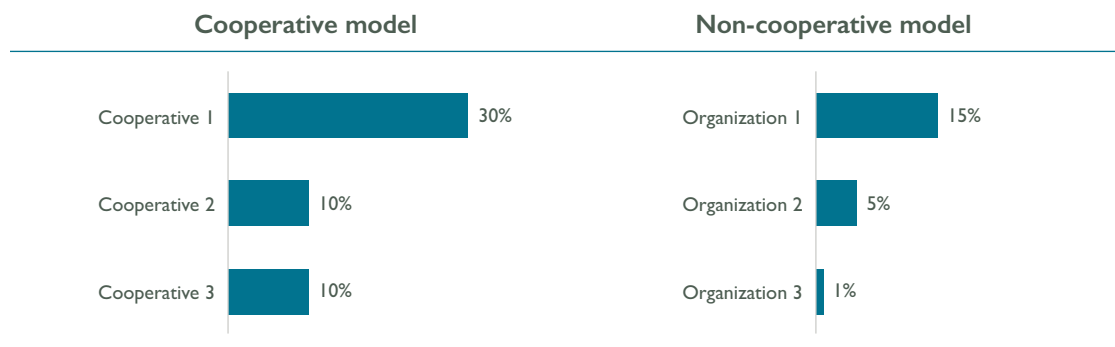
** Additional net income per farmer from a 30% productivity increase, without any provision of technology

While certification-linked price premiums can indeed generate an interesting source of additional revenue for member farmers, this windfall is dependent on the cooperative securing buyers for large volumes of certified cocoa at a good price year after year. In the case of Kuapa Kokoo, the potential \$125 premium payment that member farmers could get every year dwindled to just \$10, as the cooperative managed

to sell only one third of their harvest as Fairtrade in 2014, and after deducting the various expenses linked to the cooperatives' functioning and community projects. This looks rather pale in light of the additional income that the cocoa farmers get from adopting better agriculture practices and increasing their productivity (thanks to the training offered by the cooperative to about half of them).

²³ For instance, the East Africa Dairy Development cooperatives transport the milk as part of their services. This typically translates into further savings for member farmers.

Non-respect of engagement by farmers (% of farmers side-selling or defaulting on credit repayment)



Turning to our third question, we wanted to understand if farmers display more loyalty towards cooperatives than to other types of organizations. Indeed, cooperatives also bring intangible advantages to farmers, such as democratic governance and added transparency. The empowerment that comes with member farmers having a say in how the cooperative is run may bring them valuable benefits, but our limited sample shows that farmers do not necessarily display more loyalty as a result.

The two case studies that perform somewhat better in terms of farmer loyalty (with 10% of farmers side-selling or defaulting) try to engage their members more closely into their operations, and use group dynamics (if not peer pressure) to have farmers respect their engagements more consistently. For instance, Kuapa Kokoo is able to limit side-selling because the executives who handle cocoa sourcing at the village level are themselves farmers elected by fellow farmers who have a direct overview of their activities. The Kenya Tea Development Agency has its factories display regularly their results (e.g. the amount of tea delivered, processed, prices fetched), henceforth creating transparency on their performance and that of others. Yet, these approaches are not distinctive enough, and other types of organizations also have a range of incentive and penalties they can use to secure more commitment from farmers.

In conclusion, only cooperatives with professional and trustworthy management, which provide productivity-enhancing technologies – or at least effective training – to their members, and engage them in a way that fosters collective empowerment and leadership, are a better place to be for farmers. When these do not exist, setting up new cooperatives is a complex and time-consuming endeavour that does not necessarily lead to the establishment of transparent, efficient and larger-scale structures. Yet, when successful, such examples are inspiring, as we can see from the Phata example.

Phata – an encouraging example of a successful cooperative set up from scratch

Phata is a fully registered cooperative of 378 subsistence farmers in Malawi, who own together approximately 325 hectares of dry, rain-fed land. Phata requested assistance to start growing sugarcane under centre pivot irrigation, with the help of Agricane, a farm management company. Agricane helped the farmers to pool their land and form a cooperative and secure a supply contract through an off-taker agreement.

The farmers together own 100% of the cooperative. The size of the parcel of land each member has contributed to the scheme determines his pro-rata share in the cooperative which determines the size of his annual dividend. Dividends are paid in cash from profits. The community also has access to irrigated areas between the pivots to grow food crops.

There is also a mechanism to provide the farmers with a guaranteed income in the event of a poor year's performance: Agricane pays a fixed 'rental payment' to the farmer members who receive the higher of this or the average annual dividend. The cooperative has also set up a revolving fund from the profits of the commercial seed production cultivated on 25 hectares of pooled land. Phata Cooperative has a Board of Directors, an Executive Committee and various sub-committees, all elected amongst the smallholder farmer members. The cooperative employs over 150 people from the local communities.

A number of factors explain Phata's success:

- Securing a formalized market linkage through a guaranteed off-taker
- Farmers initiating and seeing the need for the land aggregation, rather than it being externally imposed
- Secured land access title for each of the individual members wanting to join the cooperative
- Cooperative members through their elected representatives actively take part in the company's operation and its day-to-day activities
- A well-structured capacity building programme for farmer members to allow them to gradually lead key components of the scheme
- An existing, competent commercial management and technical partner with knowledge and experience of the sector (i.e. Agricane), to help set up the cooperative and deliver the technology and training, which is paid by the cooperative directly.

CONCLUSIONS

It makes business sense to work with and for smallholder farmers, to help them achieve higher incomes and often transform their lives in the process. But a balanced and stable relationship is essential to ensure both sides – the farmers and the organization working with them - grow and thrive.

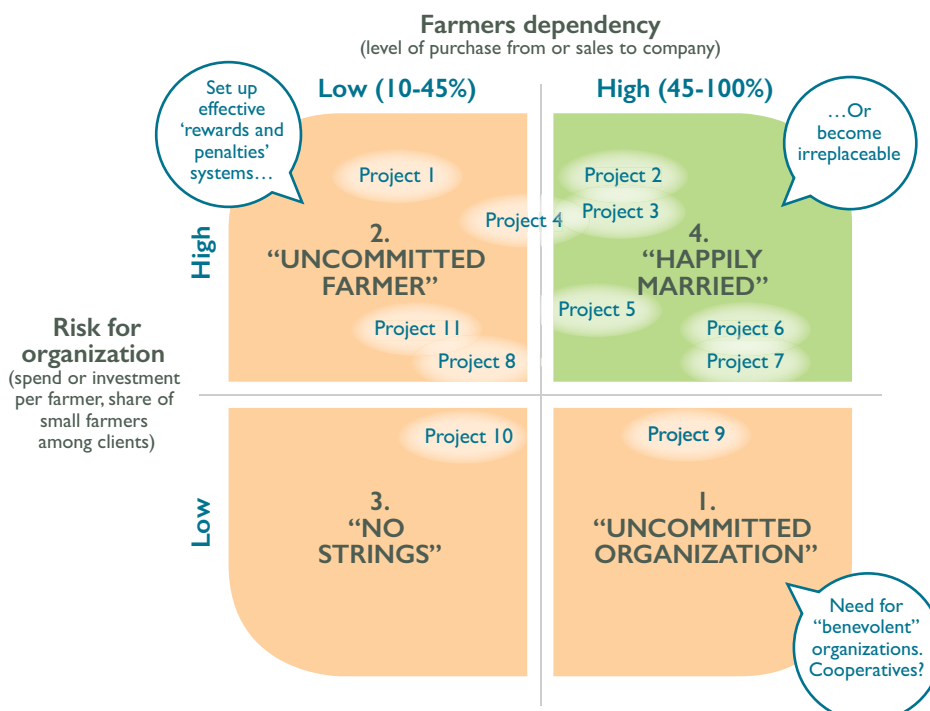
As we saw in our various case studies, this equilibrium is sometimes difficult to attain:

- 1) In the 'uncommitted organization' scenario, the farmers are highly dependent on the organization working with them to access essential inputs or sell their harvest, but the organization itself is not committed to developing these farmers in the long run. This is not a viable situation and may lead to exploitation of farmers. Mitigation measures exist though, and should be enforced whenever possible.
- 2) In the 'uncommitted farmer' scenario, the organization invests into farmers, but the latter do not value sufficiently the benefits they derive from it, and show little loyalty. This organization is unlikely to invest durably – and it may turn opportunistic over time. Yet, organizations in such a situation can find ways to become more relevant to farmers, or even indispensable to their success.
- 3) In the 'no string' scenario, neither side is investing much, so there is not much to lose either; but it is unlikely that this set-up will produce significant

long-term benefits to both sides. In some cases, the lack of investment from the organization and the opportunistic behaviour of farmers will result into a downward spiral of lower productivity and heightened competition among organizations (mostly based on price), which will trigger further opportunistic behaviour among farmers.

All organizations experiencing such unstable set-ups should strive for a more balanced 'happily married' relationship (our scenario 4), whereby the farmers and the organization have chosen to work with each other for the longer-term.²⁴ In this scenario, the organization has managed to become essential to the success of farmers, but its success is also linked to the long-term prosperity of the farmers it works with. Unlike scenarios 1 and 2, this is not a scenario that involves dependency on one side or another; but rather a balanced give-and-take arrangement: The organization develops strategies to ensure that farmers remain loyal to them, and farmers value sufficiently the benefits they get from dealing with that organization to show loyalty and commitment over time.

4 types of relationships between farmers and organizations



²⁴ We do not imply that all marriages are designed this way, but this is the definition we give it for the purpose of this report.

Finding ways to create more value for both sides is perhaps the most sustainable way to be 'happily married'. But what organizations are best placed to do so, sellers or buyers?

Sellers of productivity-enhancing technologies and inputs create most value for farmers. However, they do not necessarily capture it well nor easily, and incur relatively high outreach and training costs, especially if they work with smaller farmers, and/or in areas with little distribution and outreach infrastructure. This results in margins that are often less attractive overall. However, if these sellers manage to diversify successfully and expand operations into buying from the farmers they made successful in the first place, they can become extremely profitable, develop a difficult-to-replicate competitive advantage, and build on the close ties with the farmers they serve.

On the other hand, buyers have an intimate understanding of the farmers they work with, and often deliver training and services in a way that is both more effective and efficient. However, they are often trapped into a vicious cycle. Because they may bring limited value to farmers (most often in the form of a price premium or training on better agricultural practices), farmers do not necessarily value the investments these organizations make and end up side-selling or defaulting. This in turn leads the organization to invest even more selectively (so that their efforts do not benefit competition), which makes the value proposition to farmers even less compelling (resulting in our 'no strings' scenario). This can be overcome by having these organizations start proposing productivity-enhancing technologies, which transform the farmers' economics, and bring the relationship between the organization and the farmer to a new level of investment and loyalty.

Obviously, evolving an organization's focus beyond its immediate core business and have it further integrate up or down the value chain is no easy affair. As a result, many organizations shy away from it, or outsource this part to other players. But as we argue in many of our studies,²⁵ working at the Base of Pyramid often requires challenging and reinventing traditional business approaches, to place farmers at the centre of the value proposition and operations. No less is required to make them the successful partners of tomorrow that any agricultural company wants to work with in a world of increasing uncertainty and volatility.

25 See our publications at www.hystra.com/open-source-reports/

Appendix A: Acknowledgements

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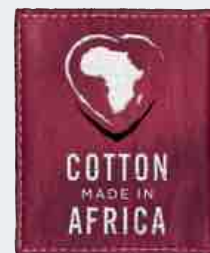
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Appendix B: Case studies of the 15 organizations



Cotton Made in Africa (Aid by Trade Foundation)

www.cottonmadeinafrica.org

Ivory Coast, Burkina Faso, Ghana, Malawi, Mozambique, Tanzania, Zambia, Zimbabwe

Training around 480,000 smallholder farmers across 8 African countries to grow cotton sustainably while improving their livelihoods, and selling it on to an alliance of international clothes manufacturers and retailers

Key insights

Cotton made in Africa has increased its visibility on demand for sustainable cotton by organising an alliance of buyers: Cotton made in Africa (CmiA) is a label displayed on garments to support the sourcing of sustainably grown cotton from small African farmers. It has created a “Demand Alliance” of more than 20 brands and retailers who are committed to procure sustainable cotton, produced according to CmiA criteria. Securing this demand has enabled CmiA to lower the risk of investing in the supply side to train farmers on sustainable cotton farming and verify the production of this sustainable cotton, and has allowed it to build enough capacity to be of interest to large buyers, which in turn has spurred the growth of the initiative.

Partnering with ginning companies has allowed CmiA to train and verify nearly half a million smallholders on sustainable cotton farming: African smallholders sell their cotton to local ginning companies who process and sell it on the global market. CmiA has “piggybacked” on these companies' existing field officers which it has trained on sustainable agriculture so they can themselves teach farmers. This was made possible by the alignment of interest between CmiA and its partner ginneries, which have everything to gain from the higher productivity of their farmers, and are therefore contributing to the cost of training. This has also helped create closer relationships between farming communities and the ginners, increasing loyalty and reducing side-selling to competitors.

CmiA can offer great flexibility to its demand alliance partners through a mass balance model at the level of spinning mills: most of the cotton grown to CmiA standards can be mixed with standard cotton when spun into yarn. The amount of yarn sold as CmiA has to correspond to the amount of CmiA cotton bought by the spinning mill. All transactions are being reported to a database of the Aid by Trade Foundation who also controls the correct balance of CmiA cotton to yarn at spinning mill level. This system avoids segregating the CmiA cotton in the value chain and thus additional sourcing costs and extended lead times (as compared to organic cotton standards where value chains are segregated). However, it requires guidance for retailers and brands on how to communicate to consumers on garments that are not necessarily physically made of CmiA cotton but that support the livelihoods of small-scale farmers while protecting the environment through the demand of cotton.

CmiA is selling sustainable cotton at the global market price, without a premium but with a licensing fee: Because it may increase the price in the textile value chain, CmiA does not charge a premium on the purchasing price of the cotton. Rather, it pays for the training and certification of farmers and ginneries by charging a volume-based licensing fee to the clothes manufacturers and retailers in the Demand Alliance, which they must pay to be able to use the CmiA logo and thus communicate to investors and consumers

Description of the project

History / Key milestones:

The Aid by Trade Foundation (AbTF) was created in 2005 by Dr Michael Otto, chairman of the Advisory Board of the Otto Group, a large German mail order and multichannel company, with the aim of improving the livelihoods of smallholder farmers in Africa and protecting the environment. CmiA is its main initiative.

CmiA began by forming a Demand Alliance of retailers and brands that were interested in sourcing sustainably grown cotton for their assortments. Its close ties with the Otto Group (which sells clothes among many other things) gave CmiA a head start in building this first network of buyers.

The successful pilot phase of CmiA (2005-2008) has convinced the Bill & Melinda Gates Foundation as well as the German Ministry for Development to give funding for an extension of the CmiA program. The Competitive African Cotton Initiative (COMPACI) was launched to design standards for sustainable cotton agriculture and provide training to farmers. This training programme reaches smallholder farmers via out-grower schemes of local cotton ginning companies. COMPACI trains extension staff at the ginneries to train farmers during classes covering good agricultural practices and entrepreneurship, amongst other topics. CmiA began integrating the ginning companies working with COMPACI into its value chain by certifying the sustainability of their cotton.

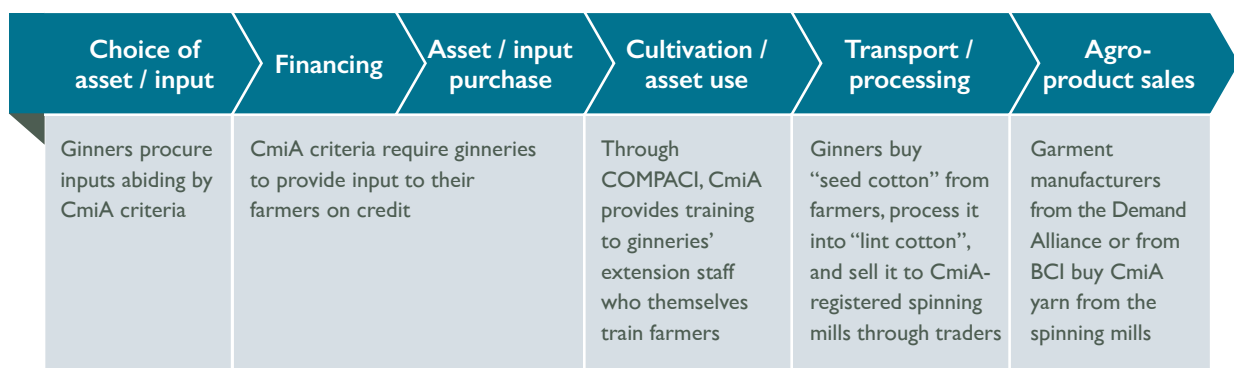
The first CmiA-labelled cotton was produced in 2006 from 145,000 farmers in Benin, Burkina Faso and Zambia.

In 2012, CmiA signed a partnership with the Better Cotton Initiative (BCI) to distribute its cotton also through BCI channels, as not all of the cotton produced according to the CmiA criteria could be sold as CmiA cotton. BCI is also a standard for sustainable cotton, but working with both small and large producers globally. BCI is GMO neutral (while CmiA does not allow GM modified seeds) and so far does not allow labelling of garments. Both standards cover different African countries.

During the 2013-2014 season, CmiA worked in 8 countries with 14 cotton ginneries, supporting nearly 500,000 farmers, and certified around 170,000 tons of lint cotton.

Business model:

- **Role of key stakeholders in the value chain:**



- **Value proposition:**

- » **For cotton farmers:** Cotton is one of the main cash crops in Africa, but small-scale farmers typically suffer from low productivity due to lack of inputs and poor farming practices. The CmiA model allows farmers to enter into contract farming with ginning companies: ginners provide farmers with inputs on credit (to be repaid after harvesting) and with training on efficient and sustainable farming practices: in exchange, farmers supply their cotton to the ginning companies. The degree to which farmers are tied to a ginner depends on the local set-up and legislation. Provision of inputs and training allows farmer to significantly increase their yields: credit on inputs limits their upfront investment.

- » **For ginning companies:** CmiA's 14 ginning partners typically need to secure the highest possible volumes of cotton to cover high fixed costs in infrastructure and staff. Increasing yields allow ginners to secure larger volumes of seed cotton per farmer and sell more tons of lint cotton, reaching breakeven more quickly and improving the profitability of their operations. In some countries where ginners compete to secure harvest from farmers, providing training and inputs on credit helps build farmer loyalty and can reduce side-selling to other ginneries.
- » **For international cotton buyers:** The 20 manufacturers that joined the Demand Alliance are interested in purchasing sustainably-grown cotton that decreases their environmental impact while effectively supporting the livelihoods of farmers to meet their internal goals in terms of environmental and social sustainability. CmiA offers a scalable system which is easier to integrate into value chains and less costly than comparable organic certifications. They are also able to use the CmiA label on their products and in their communication to signal their engagement externally to consumers and investors.
- **Operations:**
 - » **Training:** staff from COMPACI helps ginners organise the training of farmers and implementation of sustainable cotton standards in the field. Ginners typically have existing extension officers that work in farming communities and organise the buying of the crop: these officers are trained by COMPACI to also train farmers in groups. Each group of 20-30 farmers designates a lead farmer to relay the training at the community level: this lead farmer interacts with the extension officer on a regular basis. To make sure this train-the-trainers scheme is efficient, COMPACI has developed a curriculum focused on 5 practices of sustainable cotton farming (dubbed "the 5 fingers") which extension officers, lead farmers and farmers can easily remember and apply. It has also designed locally-adapted training materials on a number of additional issues (including cartoons and songs) to further facilitate assimilation.
 - » **Verification:** CmiA has developed a set of criteria defining sustainable cotton farming on 3 levels: the farmers supplying the ginnery, the ginning plant's operations, and the ginnery's management capabilities and practices. Each level includes both exclusionary criteria (e.g. child labour) and progressive criteria (e.g. proportion of women among farmers trained) which are monitored for improvement (from red to green). Before a ginnery is integrated into CmiA's value chain, third-party auditors are hired to verify compliance with exclusion criteria. After verification, each of the 3 levels has to be verified every 2 years: CmiA has designed a continuous improvement process whereby every verification leads to recommendations to the ginnery management on where to progress and how. Ideally, there should be no criterion ranked red after the 1st subsequent verification, and constant progress shown towards more greens after the 2nd subsequent verification. The rest of the value chain (traders and spinning mills) is not subject to verifications but commit to respecting Chain of Custody guidelines issued by CmiA.
- **Access to market:** This remains a challenging task. Uptake for sustainably produced cotton does not yet meet production levels. In 2014, 75.000 million tonnes of CmiA cotton was sold either as CmiA (25%) or through the network of BCI (75%). Cotton produced to CmiA standards can take 1 of 2 logistical paths:
 - » **Mass balance (MB):** Garments produced according to the mass balance system may not necessarily contain CmiA verified lint. However, this system prescribes that the equivalent amount of CmiA verified lint is processed at the spinning mill level, and thus corresponds to the amount of textile sold as CmiA. A content claim on product level is not possible: however, product labelling is allowed e.g. with the label "Supporting the CmiA initiative". Garments made according to the mass balance system may be sold with the label "Supporting CmiA". They represent 95% of cotton certified by CmiA that are marketed as such.

» **Hard Identity Preserved (HIP):** The HIP system requires that the CmiA declared products contain at least 50% CmiA verified and traceable lint. The remaining 50% may contain any other (non-cotton) material. Content claim as well as product labelling is possible e.g. with the label "CmiA inside". All entities that are part of the value chain for a HIP garment are subject to the CmiA's HIP system requirements. The system requirements include all main participants in the CmiA cotton value chain: cotton traders, spinning mills, manufacturers, and retailers. The traceability of CmiA HIP is achieved by creating a verifiable link between value chain entities, regardless if the different entities act alone or are integrated. Traceability is achieved, as long as all entities in the chain of custody adhere to the system requirements. This traceability demands higher management attention at the level of retailers and brand. They make up less than 5% of the CmiA production which is labelled.

- **Revenue model:**

Retailers and Brands of the CmiA Demand Alliance buy cotton from traders at market price through their textile value chains, and pay volume-based licensing fees to CmiA to use the label

CmiA uses these fees to finance verification by third party auditors and supports 50% of training costs through COMPACI (at \$19 per farmer per year)

Ginning companies cover the remaining 50% training costs

Farmer demand creation and user adoption strategies:

- **Customer acquisition:**

» **For cotton farmers:** In each ginnery, extension officers are leveraged to provide training to an increasing number of farmer groups. Adoption of sustainable agricultural practices in each group is facilitated by a lead farmer, who is incentivised through free inputs from the ginnery to grow a "demonstration plot" in his field, where the other farmers can see for themselves the increased yield resulting from better practices. Lead farmers are generally prominent and respected figures in the community, who may be more educated or entrepreneurial. It typically takes 1 to 2 seasons before the majority of farmers in a group or in a village realises the extent of the benefits brought by good agricultural practices and adopts them.

» **For ginning companies:** CmiA's sourcing grows by partnering with ginners. So far, CmiA has leveraged COMPACI's existing relationships to recruit new ginners into the programme. Some larger ginning companies also have operations in several countries. Ginners have to show good management capabilities and willingness to invest into training (they cover 50% of the cost) and sometimes recruiting additional field staff in order to improve productivity of farmers and, as a consequence, their own profitability. In the course of 2014, the extension of CmiA to include seven new ginning companies with approximately 340,000 additional farmers has started and will become effective in 2015 season.

» **For international cotton buyers:** CmiA started to launch the first products within the Otto Group (which now sources 1/3 of its textile cotton from CmiA) and grew the business first in Germany and then in Europe. Meeting the companies' own sustainability goals and consumer expectations are important reasons for joining the Demand Alliance. Buyers need to be informed about how to integrate CmiA into the value chains: CmiA works very closely with their sourcing teams (e.g. companies can run a small test order before a contract is signed). The functioning of the mass-balance system and its implications in communicating to consumers are also explained in detail. Lastly, CmiA provides members of the Demand Alliance with the opportunity to channel their CSR budget into community projects (schools, hospitals etc.) implemented by partner ginners, and amplify their impact on the livelihoods of their suppliers.

- **Customer retention:**

- » **For cotton farmers:** To cover their fixed costs, ginneries must maximise the volumes of cotton they collect and prevent farmers from selling their harvest to competitors. The degree to which farmers are tied to a ginner depends on the local set-up and legislation. In West Africa, the concession model where each ginnery is able to exercise a monopoly over a designated catchment area is dominant and limits side-selling to a minimum. In East and South Africa however, ginneries tend to compete to buy harvests from farmers and side-selling can be high. CmiA encourages its partner ginneries to recruit more extension workers, build farmer loyalty through the provision of other services (e.g. loans, savings) and community projects (e.g. roads, schools, hospitals). These projects can also be co-funded by CmiA or members of the Demand Alliance.
- » **For partner ginning companies:** CmiA maintains close ties with ginners through the verifications during which they can reflect on their past performances and plan for future improvement. This continuous improvement process measures benefits acquired from the project and helps ensure the satisfaction of partner ginners.
- » **For members of the Demand Alliance:** Buyers sign a license contract. The amount of the licensing fee applied decreases with volumes (from 0.10€ to 0.025€ per piece of textile) to incentivise larger volumes. The CmiA team is also working closely with buyers in the Demand Alliance to facilitate and control communication on the CmiA logo, protecting its brand equity.

Regulatory and ecosystem issues:

- Prices at which ginneries buy seed cotton from farmers in Africa are very much regulated and determined by national authorities. However, especially in East Africa, poor law enforcement allows ginneries to illegally compete for volume by paying farmers higher prices than allowed by law, causing contract farmers to side-sell to other ginneries, and harming the profitability of ginners that engage in contract farming.
- In 2013, CmiA had to suspend its operations in Benin after the country changed the organisation of the cotton sector so that ginneries could not trace the cotton they sourced, and compliance with CmiA sustainability criteria could not be ensured.

Is the project impactful?

Improvement of productivity and incomes:

- » Depending on previous practices, the adoption of good agricultural practices can increase yield per acre of cotton by up to 100% over 1 season (1 year)
- » In control trials, CmiA measured 14% yield growth in Burkina Faso, and 35% income growth in Benin from 2009 to 2012
- » In most countries, inputs are generally State-subsidised and distributed through ginning companies (which are not allowed to make a margin on this service), making them much more affordable to farmers than in retail shops
- » Integrated pest management allows reducing the quantity and the cost of pesticides used by 30 to 50%.

Other additional benefit:

- **Benefits on other crops:** good agricultural practices can be applied to other crops (e.g. maize) and also enhance their productivity.
- **Health benefits:** CmiA standards promote a reasoned use of the less toxic pesticides available. Training and verification lay a strong emphasis on proper management and disposal of pesticide containers and the use of protective equipment when spraying.
- **Community projects:** Any remaining profits made by CmiA (as well as contributions from ginning companies) are invested into community projects (e.g. schools, adult literacy training, support of women's cooperatives, water, hygiene and sanitation). Impact is assessed through indicators specific to each project. Such projects represented 183,000€ in 2014, or 9% of CmiA's budget. The total investment sums up to nearly €3 million.

Scale and reach

- **Total number of farmers reached:** 480k farmers across 8 countries in 2014
- **Rate of penetration in target communities:** In 2014, CmiA had verified nearly 100% of the 480,000 farmers from which its 14 ginning partners source their cotton
- **Growth rate:** 145,000 in 2009, 480,000 in 2014: 38% CAGR, by partnering with new ginning companies
- **Ability to reach the poorest:** The majority of CmiA farmers are very small holders cultivating 1.3 acres of cotton on average
- **Farmer satisfaction and loyalty:**
 - » Acreage: Farmers plant their crops on the basis of the expected market price: when the market price of cotton is expected to be low, other cash crops (such as rice or tobacco) are favoured. Other factors external to cotton (e.g. subsidies on maize prize) can also make farmers switch to other crops. Improving the productivity per acre is key to countering this effect and building farmer loyalty to cotton by providing a higher and steadier return on investment.
 - » Side-selling: In countries where ginneries do not have a monopoly for sourcing in designated areas, ginning companies typically lose 5 to 40% of the farmers they have supplied with inputs to competing ginneries offering higher prices for their harvest. This can result in considerable losses for ginners who need to collect high volumes of cotton to compensate heavy fixed costs. The CmiA model helps build farmer loyalty by bringing additional value to the farmers through training, strengthening their ties with ginning company. Significant decreases in side-selling after extension services where provided have been reported. CmiA is piloting sample based surveys which, once generalised, should provide ginners with better tools to measure side-selling.

Acceptance and usage: The quality of existing cotton farming practices varies greatly between regions of Africa. Sustainable cotton farming practices as taught by COMPACT are more of a change in behaviour for farmers in East Africa who are rarely mechanised, and sometimes still use broadcasting to sow their seeds (as opposed to sowing them in regular lines).

Is the project (economically) sustainable?

For smallholder farmers:

- **Initial cost:** Purchase of input on credit eliminates initial cost for farmers
- **Recurring cost:** Repayment of inputs may represent up to 10% of payment of harvest
- **Cost of best alternative(s):** Alternative cash crops for farmers include tobacco and rice, which may be more profitable than cotton, depending on market prices
- **Affordability:** Farmers do not pay for training or participation to the programme
- **Additional income generated by solution:** 35% income growth measured in control trials in Benin from 2009 to 2012 (no overall evaluation available)
- **Additional net income generated by solution:** Not yet measured

For ginneries: By increasing both the productivity and loyalty of farmers, the CmiA model helps ginneries secure higher volumes, and a higher profit (given high fixed costs). Although CmiA has not yet conducted an assessment of the return on investment of providing inputs and training, interviews with the management of 2 ginneries indicate the additional profits far outweigh the costs of training.

For CmiA:

2014 CmiA revenue structure

	USD
Licensing Income	1.13 million
Partnership contributions	379,000
Public and private grants and donations	328,000
Other income	290,000
Total Income 2014	2.13 million

2014 CmiA cost structure

	USD
Program implementation (training and verifications)	1.39 million
Management and administration	355,000
Marketing, sales, communication	366,000
Community projects	205,000
Total spending 2014	2.32 million

Funding for COMPACI through BMZ and Gates foundation will come to an end in 2016 as planned, after which training and verifications will have to be fully supported by cotton companies themselves or through license fees and partnership contributions.

For members of the Demand Alliance: So far there has been no assessment of the additional revenue generated by the CmiA label on garments.

Positive externalities: In certain countries, CmiA's ginning partners represent a large enough share of the industry for it to have a positive influence on national cotton policy (e.g. a Memorandum of Understanding was signed with the regulatory authority of Ivory Coast).

Is the project environmentally sound?

Environmental sustainability strategy: Reduced environmental impact of cotton farming is at the heart of the CmiA standard and criteria

Observed impact of the project on:

- **Land use and sustainable management:**
 - » Deforestation is an exclusion criterion
 - » In 2014, 69% of total CmiA farmers were trained in conservation agriculture
 - » Use of certain hazardous pesticides is prohibited through an exclusion criteria (PIC and POPs Conventions, WHO Ia/Ib); close monitoring of pesticides used, additional support to strengthen alternatives to chemical pesticides (bio-intensive IPPM approach)
- **Management of water resources:** Irrigation is an exclusion criterion. The use of surface and ground water by CmiA's rain-fed cotton is marginal as compared to standard irrigated cotton
- **Biodiversity:** Reduction in use of pesticides means a healthier biodiversity
- **Emissions of greenhouse gases and other air pollutants:** Emissions of greenhouses gasses for CmiA cotton represent only 55% of the global average impact of standard cotton.

Is the project reinforcing local social capital?

Involvement and empowerment of local organizations and their leadership:

- CmiA leverages the existing network of farmers of the ginneries, strengthening the relationship between their extension officers and the community

Involvement and empowerment of women:

- The proportion of women among trained farmers and ginnery staff is a development criterion
- CmiA has set up "Cotton Women Clubs", to train women to grow other crops and help connect women from different villages. 23% of female smallholder farmers working with CmiA ginneries are members of a women's club. Such clubs can also evolve into savings groups and invest in additional income-generating activities.

Is the project scalable and replicable?

Key challenges and possible solutions to scale further

- **Building demand for sustainable cotton to achieve financial sustainability:** Access to market for sustainable cotton is still a challenge. Many retailers and brand do not yet consider sustainable cotton as a mainstream commodity. More consumer awareness is also needed to grow the market. CmiA has to grow orders for sustainable cotton from the Demand Alliance first by increasing orders per member and then recruiting new members. It is currently looking to grow out of Europe and enter the North American market.
- **Eliminating upcharges from value chains:** Although CmiA cotton should theoretically not create additional costs in the value chain, this is still the case in some markets. CmiA is working closely with the sourcing and CSR teams of the Demand Alliance members to better share best practices in logistics and improve transparency so that these additional costs are eliminated.

- **Ensuring farmers' loyalty to growing cotton:** Fluctuations in the cotton international market price affect the willingness of farmers to grow cotton. A low price of cotton has the potential to turn back the clock on previous work as farmers revert to other cash or food crops, and also makes it more difficult to engage new farmers in training activities and incorporate them into the project. Increasing the productivity per acre through training helps the profitability of cotton farming even with low market prices. Developing extension services and broadening the range of services associated with the ginnery is also essential to secure loyalty and limit side-selling.
- **Maintaining standards:** There is a trend among African countries to use transgenic cotton seeds which are excluded under the CmiA standard. When Burkina Faso adopted transgenic seeds in 2012, COMPACI maintained its operations in the country and CmiA created the Sub-Saharan Cotton Standard (SCS), which does not exclude the use of transgenic seeds. Cotton produced according to SCS is exclusively sold into the BCI chain of custody and is not eligible for the CmiA label.

External pre-requisites for the project to replicate in a new country

- CmiA as itself can only be extended to African countries where cotton is grown by smallholder farmers who do not use irrigation
- An existing network of ginning plants with extension officers is necessary to provide training on a large scale and cost-efficiently. CmiA leveraged the existing relationships between COMPACI and ginners to enrol them into the program more easily.

Sources:

Interview with Christoph Kaut, Managing Director; Tina Stridde, Managing Director; Carole Romero-Vargas, Project Manager; Aid by Trade Foundation; Benjamin Koehler, Project Manager Sustainability at OTTO Group.

Field visits of Birchard Oil Mills and Alliance Ginneries, Tanzania, from the 16th to the 20th of February 2015, including interview with senior management, operation managers, extension officers and farmers.

www.cottonmadeinafrica.org/en/materials/annual-reports

Contact person: Carole Romero, Project Manager, Aid by Trade Foundation, Carole.Romero@abt-foundation.org

Exchange rate: 1 USD = 0.89 EUR

Samruddhi (BASF)

www.agro.basf.com/agr/AP-Internet/en/content/sustainability/best_practices/samruddhi/india-agriculture-project



India

Samruddhi provides agricultural training to over 325,000 farmers in India and advises them on ways to increase yields and farm profitability

Key insights

Implementing training programs and encouraging use of basic agricultural inputs can increase farmer productivity by over 25%: Since 2007, the year BASF India started the Samruddhi program, farmers have seen their yields increase on a continuous basis. When validated by PwC in 2012 the Samruddhi farmers registered an increase in yield of 25% on average and their profitability improved even further, by up to 38% on average,²⁶ thanks to improvements in the quality of their produce.

Demonstrating short-term visible crop improvements can convince farmers to change behaviors within one season: BASF trains and works with progressive lead farmers known as Margdarshak thereby ensuring transmission of Samruddhi techniques to other farmers. They help convince other farmers of the benefits of adopting Samruddhi's practices and input recommendations. Additionally Samruddhi field officers organize small demonstrations at farmers' meetings in public places for all farmers to see, such as planting a tray of treated seeds next to a tray of untreated seeds, which within a week show results in terms of better germination percentage and vigor. This efficiently convinces farmers to adopt such seed treatment in that same season.

Providing support with various levels of intensity over time results in both high adoption and retention of new practices: The first two years, Samruddhi field officers provide intensive training to Samruddhi farmers at every step of the season (including postharvest). After that, a call center continues to follow-up with these farmers at key cultivation times. Additionally, any farmer can contact the BASF call center with questions. This allows BASF to reduce the intensity of the face-to-face support it offers farmers without seeing a decrease in product sales and without compromising on reaching out to more farmers. This enhances operational efficiencies.

Description of the project

History / Key milestones:

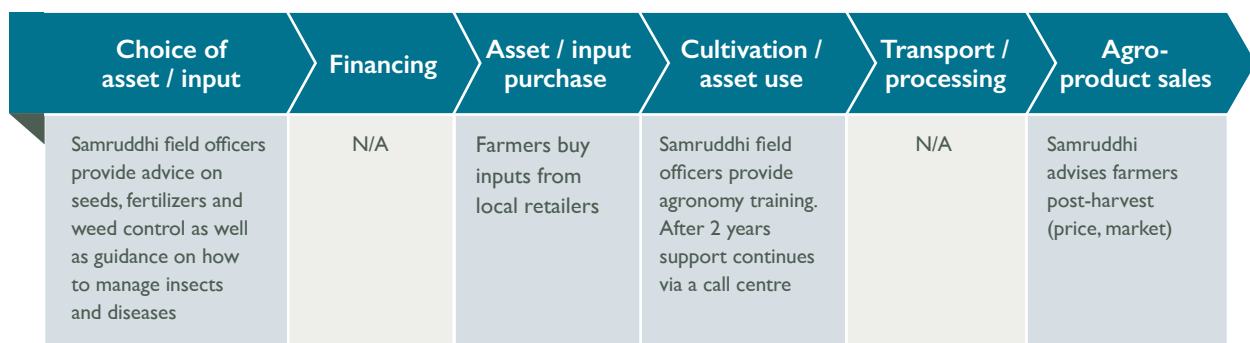
India is one of the most important global producers of soybeans, yet its productivity is about a third of the world average. In 2007, BASF launched "Samruddhi" (meaning prosperity in Sanskrit). During the pilot year, around 30,000 Soybean farmers were provided training on agricultural techniques, proper use of fertilizers and crop protection products in Madhya Pradesh by BASF Samruddhi field officers. These farmers were then able to continuously share their expertise with other farmers. As word of the project spread, demand for BASF's expertise grew and more farmers started to attend the training sessions and associate themselves with the program. These farmers were provided with face-to-face support by Samruddhi field teams for a period of two years, after which they were put in touch with a call center that provides guidance over the entire crop season. In 2011, the "Margadarshak" lead farmer concept was launched, and more than 10,000 progressive self-reliant farmers were provided with specialized training allowing them to themselves act as disseminators of knowledge on behalf of Samruddhi.

By 2012, Samruddhi had covered most of India's soybean belt. Samruddhi has continued to expand by offering new products to serve more of its farmers' needs.

²⁶ Source: Primary survey 2013, PwC Analysis

Business model:

- **Role of key stakeholders in the value chain:**



- **Value proposition:** Samruddhi offers farmers continuous technical assistance on best agricultural practices as well as locally tailored advice on the most effective inputs, through its agronomist field officers and the lead farmers they train. This program is implemented in areas complemented by strong retailer presence, enabling farmers to promptly procure the recommended products for their crops. The price of the corresponding products for one acre are \$9.5 to 12 for herbicides, \$16 for fungicide and \$4.5 for seed treatment, or a total of \$30-33 per acre. Efficient use of these products coupled with good practices can increase farmers' net income by up to 38% in one season.
- **Operations:**
 - » Samruddhi selects its field officers among local people who have worked in soybean production before, and further trains them on the specificities of soybean cultivation. Field officers are then assigned a zone close to their homes, corresponding on average to 20 villages. In each village, a field officer works with around 200 farmers, guiding them through the different stages of soybean cultivation by visiting their fields. In those villages, field officers also organize presentations for farmers, including an introduction to BASF, a safety film (on how to safely spray pesticides etc.) and an introduction to good farming practices. BASF experts provide farmers with in-person advice on seeds, fertilizers and weed control as well as guidance on how to manage insects and diseases. Using a cascade, "train the trainer" model, they transfer knowledge to lead farmers (the "Margdarshaks") who are ambassadors for the program. These lead farmers (who practice good agriculture and enjoy considerable influence among their fellow farmers) encourage their peers to adopt new agricultural practices to improve productivity and general efficiencies. As field officers are mostly from the areas they work in, they have a better sensitivity as for which lead farmers could be successful.
 - » Field officers train selected Samruddhi farmers intensively for two years, demonstrating the benefits of best agro-practices in group training. If required, they also perform demonstrations on a portion of Samruddhi farmers' land (e.g., on an area of 0.25 acres), so that at the end of the season, the whole village can see the benefits. The field officers recommend all necessary agronomic practices, including non-BASF ones such as adequate fertilizers (farmers must buy the corresponding inputs). Their recommendations are also tailored to local soil conditions based on advice given by experts at local universities.
 - » In addition, field officers organize small demonstrations at the village hall for all farmers to see, such as planting a tray of treated seeds next to one of untreated seeds, which within a week shows results in terms of better germination percentage and vigor. This efficiently convinces farmers to adopt the new technology of seed treatment.

- » Lead farmers act as Samruddhi's point of contact for future visits, training others in the villages on best practices and promoting Samruddhi in their village. They disseminate knowledge without distributing products. They receive no financial incentive from BASF for doing so but benefit from social recognition within their village.
 - » Call centers staffed by trained Samruddhi agronomists provide advice to Samruddhi farmers in a phased manner corresponding to their crop stages (calls to the center are free of charge beyond normal phone charges).
 - » Existing BASF retailers continue to provide inputs to Samruddhi farmers.
- **Revenue model:** Farmers buy BASF products from existing retailers and distributors, who source their products from BASF. The additional sales generated cover the costs of the Samruddhi program for BASF.

Farmer demand creation and user adoption strategies:

- **Customer acquisition:** Samruddhi field officers go from village to village and offer training sessions that anybody can attend. They then select Samruddhi farmers (those who show interest in applying the Samruddhi learnings), taking down their details to let them know of the next in-person group trainings (anyone else can attend these trainings too). Field officers also select lead farmers (influential ones who are more likely to train their peers in turn), who get a more intensive support (including training on their own field if they wish).
- **Customer retention:** After the two first years where field officers work directly with Samruddhi farmers, a call center maintains contact with them to offer any additional support they may need throughout the crop cycle. Farmers can also contact the Samruddhi call center themselves if they have questions.

Regulatory and ecosystem issues: N/A

Is the project impactful?

Improvement of productivity and incomes: A 2012 study by PwC found that Samruddhi soybean farmers make 38% more net income per acre compared to non-Samruddhi farmers. Net profit grew from \$ 159 /acre to \$220 /acre i.e. an increase of \$61/acre.

Other additional benefit: N/A

Scale and reach

- **Total number of farmers reached:** Over 325,000 farmers (120,000 farmers with teams in field and 205,000 farmers through call centres) were trained in 2014 on soybeans.
- **Rate of penetration in target communities:** Samruddhi farmers represent fewer than 10% of farmers in a community, as Samruddhi counts on the "domino effect" of converting a few to influence many more. It is difficult to count the total number of beneficiaries adopting its products and practices given the knowledge spillovers in any given village.
- **Growth rate:** Samruddhi has grown from merely 30,000 farmers in Madhya Pradesh to spread across all soybean geographies to 325,000 farmers. Samruddhi is now growing in terms of new products offered to its farmers, e.g., fungicides since 2012 as new climate conditions created a need for such products.

Ability to reach the poorest: The program works with all types of soybean farmers.

Farmer satisfaction and loyalty: Samruddhi does not maintain a client database as its product sales go through dealers. However the strong increase in BASF sales, following program implementation, points towards a spreading adoption of Samruddhi's approach.

Acceptance and usage: In most places where Samruddhi intervenes, farmers cultivating soybeans were not following the recommended agronomic practices, such as using the right kind of seed, fertilizer, application of crop protection products, cultivation practices, etc. Samruddhi improved the acceptance and usage of best cultivation practices by tailoring its approach to the specificities of local soils and cultures in each zone.

Is the project (economically) sustainable?

For farmers:

- **Initial cost:** No cost for enrollment
- **Recurring cost:** \$ 30-33 per year per acre (for application of fungicide seed treatment, herbicide, and general fungicide)
- **Additional in-kind support received at farmer level:** Free training
- **Cost of best alternative(s):** Prior to Samruddhi, most farmers were either using hand weeding or were not using appropriate crop protection products or fertilizers. A non-Samruddhi farmer will have a cost of cultivation about 15.4% lower compared to a Samruddhi farmer. (Source PwC)
- **Affordability:** The cost of inputs recommended by Samruddhi represents 8.5% of a farmer's gross income from the harvest of the corresponding land area.
- **Additional net income generated by solution:** \$ 61 / acre for a Samruddhi Farmer.
- **Breakeven for farmer:** Less than a year (net income increase compared to previous practices).

For the central organization:

- **Revenues:** N/A
- **Operational profits (EBITDA):** The project more than offsets its costs with additional product sales
- **(Planned) breakeven date:** Already reached
- **Repayment rates:** N/A
- **Financing:** Project 100% financed by BASF, not as a Corporate Social Responsibility project but as a go-to-market approach

Positive externalities: N/A

Is the project environmentally sound?

Environmental sustainability strategy: BASF assesses the Samruddhi program with AgBalance™, BASF's own holistic method for life cycle assessment in agricultural and food value chain production processes. The 2013 AgBalance study showed the benefits of the program in both economic and environmental dimensions: farmers cultivate the land more efficiently with less energy and fewer abiotic resources as well as fewer eco-toxicological inputs through a more efficient use of fertilizer and crop protection products. Economically, the project paid off for farmers through higher yields and higher profits.

Observed impact of the project on:

- **Land use and sustainable management:** 22% increased land use efficiency²⁷
 - » Ecotoxicity Potential: 22% lower ecotox potential through an improved pesticide program
 - » Energy consumption and resource depletion: ~30% improved (through more efficient use of inputs in the Samruddhi production system).²⁸

Is the project reinforcing the local social capital?

Involvement and empowerment of local organizations and their leadership: Samruddhi's "train the trainers" approach also ensures that knowledge remains within the community.

Involvement and empowerment of women: N/A

Is the project scalable and replicable?

Key challenges and possible solutions to scale further

- Such a program must reach a large critical mass before it becomes sustainable for BASF in a given market. Large markets and high penetration are necessary for scale.

External pre-requisites for the project to replicate in a new country

- Companies implementing such a program must have a far-reaching and dense distribution system in place when launching this program, so that farmers can readily procure the recommended products.
- Companies implementing such a program must be able to offer highly effective solutions to farmers in terms of technical crop advice that visibly and quickly enhances yields from year one. Knowledge differentiation is key to build initial trust and credibility, as well as to ensure the long-term viability of the program, for both the company and farmers implementing it.
- The Samruddhi program was highly tailored to the local Indian context, leveraging BASF's existing distribution network, as well as the cultural specificities of the country. The project has inspired many similar initiatives across the globe, including BASF projects in Indonesia, as well as further adaptations in Peru, Zambia, Indonesia, Vietnam and Thailand; each of these has similarly been adapted to the local context.

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Udit, Misra "As you sow: How BASF is reaping benefits" October 29, 2010 <www.forbesindia.com/printcontent/18632>

PWC evaluation commissioned by BASF for the Samruddhi project (for data relating to impact per farmer)

Contact person: Raja Sen, Global Sustainability and Product Stewardship - Crop Protection, raja.sen@basf.com

Exchange rate: 1 USD=60 INR

Biopartenaire (Biolands Group)

www.biolands.com/index.html

Ivory Coast



Offering 23k farmers transparent payment, training, technical services, and inputs to help them produce high quality certified cocoa beans in Ivory Coast

Key insights

Biopartenaire manages to source quality cocoa sustainably and at scale by leveraging an efficient network of local intermediaries vetted by their peers. Biopartenaire selects village representatives among local farmers, via interviews with them and their peers to verify their status in the village. These representatives are then in charge of recruiting farmers, and are paid a commission to purchase the cocoa locally. This commission is enticing for them (currently the equivalent of over half an hectare of yearly cocoa production).

Rather than spending heavily on promotion activities to reach high adoption levels quickly for new cultivation techniques, Biopartenaire sets up one demonstration plot per village, or suggests to farmers to convert only a small piece of their land to new techniques, and then leaves the proof of concept do the work. This significantly limits Biopartenaire's outreach costs, as farmers come spontaneously the next year to ask to convert the rest of their field or copy the demonstration field of their neighbours.

Biopartenaire's most effective loyalty measures are those that solve farmers' immediate pain-points (transaction transparency and convenience), rather than those with the highest long-term financial impact. A key aspect that farmers mention they value in working with Biopartenaire is that their products are weighed on an electronic scale, visibly avoiding cheating. Secondly, Biopartenaire has experienced less side-selling where it has set up motorized vehicles to transport farmers' fresh seeds to their home for drying (farmers are afraid of theft if drying in the fields, and rarely have vehicles at their disposal). However, longer-term support such as training of local pruners to tend to farmers' field (which increases yields over time) does not seem to have yet affected loyalty, compared to areas without such schemes. Remaining side-selling also proves that a price premium alone is not enough to make farmers loyal.

Farmers value support in smoothing out their annual cash flow more than getting more cash at time of harvest. Certification premiums were originally paid during the planting season. As season ends, farmers' income is low, but their investments needs are high (inputs, labour, school fees). Farmers requested that the premium be paid in a lump sum at season's end, which Biopartenaire now does, effectively helping farmers to save their quality premium payment until they need it at season's end.

Providing inputs on credit can sometimes decrease farmers' loyalty in places with high competition from other buyers. A few years ago, Biopartenaire tried to provide inputs on credit to its farmers, which actually increased side selling: farmers chose to sell their beans to other buyers, who would not deduct a loan amount from their bean sales.

Description of the project

History / Key milestones:

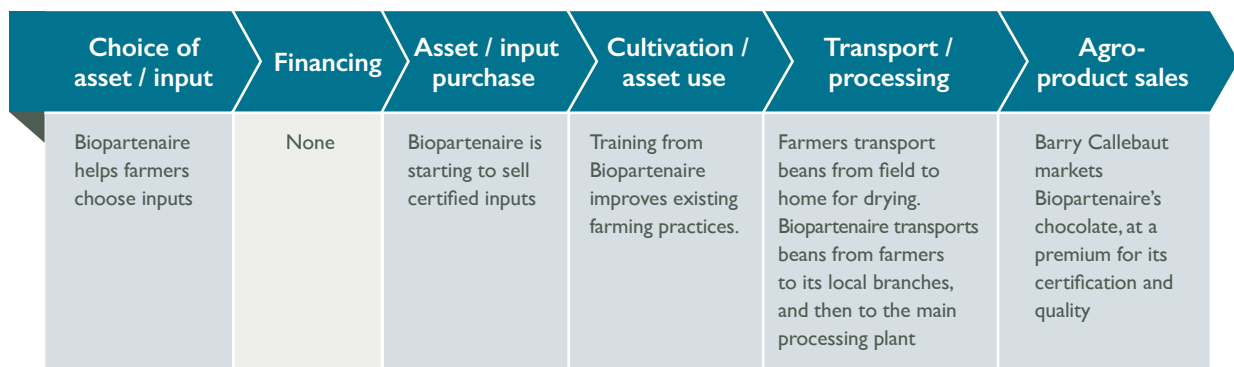
Biolands International, a company specialized in direct and sustainable cocoa sourcing, was founded in 1999 in Tanzania. Since its start, it offers training in organic agricultural practices to farmers. Since 2000, Barry Callebaut, a Swiss chocolate manufacturer, has been purchasing 100% of Biolands' sourced cocoa.

In 2008, Barry Callebaut acquired a 49% stake in the company and started to replicate the Biolands model in other African countries. It launched Bio-United in Sierra Leone in 2008 and Biopartenaire in Ivory Coast in 2010 (for certified cocoa). In 2014, Barry Callebaut acquired the remaining shares of the Biolands Group.

Biopartenaire first focused on building the right team and reaching a critical mass of farmers. It then rationalized operations by densifying its branches to be closer to farmers and increase their loyalty and hence tons of cocoa per farmer. As of 2015, Biopartenaire focuses again on growth by scaling up to new geographies and farmers, and by further improving farmers' loyalty in current areas of operations.

Business model:

- **Role of key stakeholders in the value chain:**



- **Value proposition:** Biopartenaire is a cocoa buyer that offers farmers registered with its program:
 - » Official national price for the produce weighed on an electronic scale. The produce must respect minimal quality requirements (well sorted, well fermented, well dried)
 - » Tailored training on good agricultural practices (including tree pruning, optimal use of pesticides and fertilizers, replacing of plants too old to produce, agro-forestry etc.) as well as on post-harvesting (for drying, fermenting and stocking beans)
 - » Free transportation of their dried beans to the local branch
 - » Training on labour practices, health and safety, environmental protection and other topics, which leads to Utz certification²⁹
 - » Premium linked to Utz certification, paid at the end of each season for each kilo sold to Biopartenaire (offering a de facto savings program)
 - » Starting in 2015, certified inputs (pesticides, fertilizers) at lower costs than otherwise available in rural areas

Competition includes informal buyers who still buy from a share of farmers registered with Biopartenaire, e.g., by being less stringent on quality standards (bean humidity on purchase day etc.), providing farmers transport between their fields and their home for fresh beans, or simply coming at the right time to farmers' doorstep for dried beans; and cooperatives (enrolling 20% of Ivory Coast cocoa farmers), though Biopartenaire mostly targets farmers who are not part of one.

- **Operations:**

- » Biopartenaire has 7 local branches, each with a depot to collect dried beans from farmers. Branches then send the cocoa to the main processing plant.
- » In each village, farmers or the local chief appoint one farmer who becomes a Village Representative, i.e., the link between Biopartenaire field agents and the village. He/she is in charge of recruiting farmers for Biopartenaire's Utz registration program. These representatives get support to train farmers, organize the collection of beans and pay farmers.

²⁹ Launched in 2002, Utz is a worldwide certification label that promotes responsible and sustainable farming and sourcing for coffee, cocoa and tea. Premium on the sales of certified products pay for sustainable-agriculture training programs for farmers in partnership with local organizations in sourcing countries.

- » In addition, since 2012, Biopartenaire trains other farmers to become professional service providers, such as tree pruners and pesticide applicators. Farmers pay these professionals for their services. Biopartenaire coordinators train and supervise these pruners.
- » Since 2014, Biopartenaire also started providing more intense and tailored support for its most loyal farmers: a) It has trained and is paying an extra 42 trainer-farmers to help farmers on agroforestry techniques, e.g., replanting for fallow land and field regeneration for old plantations (poly-culture taking several years to give cacao again, but coupled in the meantime with shorter cycle crops so that farmers receive income all along the cocoa growth cycle); b) representatives also promote culture intensification for younger plantations (recommending adequate types, quantities and use of fertilizers and pesticides to make cocoa trees more productive).
- **Certification process:** The certification process happens every year. Biopartenaire trains new representatives (and refreshes the knowledge of older ones) on the certification process. Representatives may register new farmers with a unique code, before training them in turn. Biopartenaire conducts an internal audit to make sure registered farmers implement all Utz practices, followed by an external audit by Utz-mandated auditors on a sample of farmers, verifying both already certified farmers and new ones. Biopartenaire starts buying from new farmers only once they are certified.
- **Revenue model:**
 - » Biopartenaire pays farmers directly at the set government price (\$1.42/kg for the 2014-15 season) when village representatives purchase the beans, mostly in cash (and mobile money for some).
 - » Barry Callebaut pays Biopartenaire a cocoa price set by the government (\$1.56/kg).
 - » Barry Callebaut's clients are chocolate brands, which pay a premium for Biolands- certified chocolate. This premium is partly passed on to Biopartenaire, and then partly to farmers in the form of a certification premium per kg, paid at the end of each season.
 - » Some of Barry Callebaut's clients also donate funds for local development programs (education, health, etc).

Farmer demand creation and user adoption strategies:

- **Customer acquisition:** Biopartenaire fosters trust in the villages via several mechanisms: the first meeting happens with the blessing of local chiefs, who invites farmers to attend. Biopartenaire selects village representatives, vetted by peer farmers. It is then the representative's role to recruit farmers for certification. Biopartenaire trains representatives at a demonstration plot in a central location, and strongly encourages them to apply the learnings to their own field to help convince others, in effect creating a demonstration plot within each village. In addition, Biopartenaire's support to farmers is gradual, starting with the Utz certification criteria (basic good practices in tending to one's field, not requiring any investment or loss of income for farmers), creating trust with visual tools such as the digital weighing scale used for product purchase, then proposing low-cost improvements such as pruning, before recommending higher costs investments, e.g., in inputs or more intense field regeneration.
- **Customer retention:** Biopartenaire offers farmers a premium per kg at the end of the season, at the period when cocoa trees do not give pods and hence farmers do not otherwise get cash. Farmers are radiated from the certification if they do not sell anything to Biopartenaire for a prolonged period. Biopartenaire is also betting on the numerous additional services it provides (sales of improved inputs, training, transportation for fresh beans) as a retention tool.

Regulatory and ecosystem issues: Having the cocoa price fixed by the government limits all players' possibilities to differentiate on price – except for a certification premium. A challenge is that this unique price is supposed to be for dried and fermented beans, while in practice farmers provide beans at different processing stages – putting the choice on the buyers to refuse the beans and run the risk of competitors taking them, or to accept less well processed inputs at the price of well processed ones, and bear the costs of finishing the process.

Is the project impactful?

Improvement of productivity and incomes: Biopartenaire improves the income of its farmers in several ways. On average:

- Fair weighing: +5% on paid quantity
- Certification premium on cocoa price: +3-4% compared to set price
- Improved productivity thanks to improved practices:
 - » Pruning of trees: +15% yield per hectare
 - » Pruning of trees, and pesticide application: +40% yield per hectare
 - » Pruning of trees, pesticide application and fertilizer: +80% yield per hectare
- Field replanting (for fields that were left to rest or were struck by disease): between \$300 and \$500 of net yearly revenue per hectare from short cycle crops (vegetables etc.) and bananas while cocoa tree grows (for the first 2 years), thanks to agroforestry techniques. Note: these are new revenues for farmers, from previously unproductive fields.

Other benefits and social impact

- Biopartenaire offers micro health insurance programs in partnership with the NGO CIDR in Ivory Coast
- Biopartenaire has set up a partnership with Orange Money to pay farmers with mobile money, which can help farmers produce income statements, save money and transfer it to their relatives. Barriers to adoption include the cost of cashing in (2.5% of transaction) and the scarcity of cash-in points in rural areas.

Scale and reach

- **Total number of farmers reached:** 23,000 farmers³⁰
- **Rate of penetration in target communities:** Estimated at around 50%
- **Growth rate over past 3 years:** Average of 42% per year from 2010-11 to 2014-15.
- **Ability to reach the poorest:** Most of Biopartenaire farmers earn below \$2/day/person from cocoa. Average farmers working with Biopartenaire have 3 hectares of land, producing at best 600kg/ha before Biopartenaire's intervention, corresponding to net revenues of ~\$2500/year for a farmer family
- **Farmer satisfaction and loyalty:** Biopartenaire observed increase of farmer loyalty from 2014-15 compared to 2013-14. Average ton per farmer shows partial side-selling among these farmers too. The company takes out of its database ~10% of its farmers per year (those who have not been delivering any cocoa to Biopartenaire over the past 2 years). The main reason for side-selling seems to be convenience: if competitors offer farmers transportation for their crops before Biopartenaire does, then farmers accept, even though they know they might be cheated at weighing.

Acceptance and usage: Biopartenaire operates in cocoa zones where farmers already cultivate cocoa. However the company promotes techniques which farmers are not familiar with, including tree pruning (which requires taking out entire branches, including some bearing pods, so that the pods mostly grow on lower branches in the next flowering), or the use of fertilizers and pesticides. These techniques clearly need time to spread, with early adopters playing a key model role in motivating their neighbours to join, and most farmers applying those techniques first to a small portion of their field before generalizing it.

³⁰ In addition, Bioland Tanzania subsidiary counted over 21,000 farmers in 2013, and over 24,000 in Sierra Leone, but this last one suspended its activities in 2014 following the Ebola outbreak

Is the project (economically) sustainable?

For smallholder farmers

- **Initial cost (\$):** No cost for registering with Biopartenaire
- **Recurring cost (\$/year):** For one hectare, if farmers follow Biopartenaire advice:
 - » For a young plantation: pruning for one hectare: \$15-35, fertilizer \$275, pesticide: \$60
 - » For an old plantation, rehabilitation pruning for one hectare: \$50-70, pesticide: \$60
 - » For replanting of a field, seed purchased in the first year: \$100 for short cycle seeds, \$83 for cocoa plants (subsidized)
- **Additional in-kind support received at farmer level if any:** Training on agro-forestry or intensification techniques
- **Cost of best alternative(s):** In some places, farmers used to purchase relatively expensive fertilizers and pesticides of doubtful quality, receiving no support on how to use it
- **Affordability:** NA
- **Additional income generated by solution:** Average net revenue increase of \$324 per farmer per year, or 13% (assuming 3ha per farmer, 100% of farmers benefit from fair weighing and premiums, 16% of farmers use pruning and 5% using fertilizers/inputs). Farmers implementing all of Biopartenaire recommendations and buying improved inputs, can result in +36% net revenue increase
- **Additional net income generated by solution:** $\$324 * 23,000 = \$7,443,750$
- **Breakeven for farmer:** Less than one year whatever the type of investment made.

For the central organization

- **Revenues:** \$12.6m in 2014, \$18.5m expected in 2015
- **Operational profits (EBITDA):** Positive net income in 2014
- **(Planned) breakeven date:** 2014 with current P&L structure, 2017 to cover all costs
- **Financing:** Since 2014, Barry Callebaut owns 100% of Biolands.

For Barry Callebaut: The advantage of this sourcing process for Barry-Callebaut – compared to going through cooperatives or local markets – is the direct access to farmers and traceability of all cocoa produced, allowing to implement specific projects with specific farmers.

Positive externalities: In Ivory Coast, the project supposedly led to have fewer local intermediaries with dubious practices.

Is the project environmentally sound?

Environmental sustainability strategy: Biopartenaire trains farmers on different agricultural techniques depending on their field's specificity, such as use of biomass as fertilizer and agroforestry, which enhances the sustainability of fields. The Utz certification is also meant to promote the sustainability of these smallholder farmers.

Observed impact of the project on:

- **Land use and management:** Biopartenaire promotes two types of cultivation techniques, one being agroforestry which does not require any artificial fertilizers. In its input intensification program, Biopartenaire makes sure farmers use optimal quantities
- **Management of water resources:** No irrigation used in cocoa plantations
- **Biodiversity:** flora and fauna: Utz certification forbids deforestation. Biopartenaire promotes poly-culture and the use of local biomass to provide good soil for cocoa trees
- **Emissions of greenhouse gases and other air pollutants:** NA.

Is the project reinforcing local social capital?

Involvement and empowerment of local organizations and their leadership: Biolands targets farmers who are not part of functioning cooperatives and works through and empowers local village representatives.

Involvement and empowerment of women: To build the capacity of women farmers active in its sourcing schemes, Biopartenaire has trained 15 women in addition to its 42 trainer-farmers, with the hope that they in turn would train mainly women farmers. It is too early at this stage to assess the results of this scheme in terms of gender equity.

Is the project scalable and replicable?

Key challenges and possible solutions to scale further

- **Finding the best services and incentives to increase farmer loyalty.** Biopartenaire wants to increase both the percentage of certified farmers selling their produce, and the percentage of their harvest they sell to Biopartenaire. In the past, Biopartenaire tried to provide inputs on credit to farmers to achieve this. This actually increased side-selling: as farmers knew the amount they owed would be deducted from their pay, they chose to sell to competitors. Biopartenaire now provides farmers with other services, such as technical support in the field, inputs at fair price or transportation of their fresh seeds to the village. Biopartenaire is working on understanding which of these services is the most decisive in increasing loyalty, and also on offering these services to a more targeted group of farmers, i.e., only those who indeed deliver enough to Biopartenaire.
- **Converting an increasing number of farmers to new practices.** The pruning support that Biopartenaire has set up since 2012 is taking off, as farmers start to see its benefits and ask for the service. However, adoption is still low for many techniques more recently promoted by Biopartenaire.
- **Formalizing processes with IT.** Biopartenaire is reaching a critical size whereby it will soon need to invest into automated processes to monitor and improve farmers' and field staff's performance, and to standardize operations. Biopartenaire is exploring IT options to do so.

External pre-requisites for the project to replicate in a new country

- **Creation of added value for farmers beyond better price:** Biopartenaire is generating value for farmers not only from the certification premium that rewards good farming practices, but also, more importantly, from the increased productivity that farmers achieve thanks to these improved practices. This makes the model resistant to shock price (these added values of Biopartenaire will remain even if the international cocoa prices drops). Any value chain willing to replicate this model needs to find out what similar macro added value it can create for farmers, if it wants its activities to be sustainable.

- **Sufficient density of cocoa plantations** to justify the costs of high touch support to farmers.
- **Unorganized cocoa sector.** Such a model would add less value in areas where farmers are already well-organized into functioning cooperatives.

Sources:

Field visits in Yamoussoukro, Blanfla, Benou, April 7-9, 2015. Interviews with Andres Tschannen, Country Director, as well as Regional and Branch Managers, and the Internal System Coordinator. Focus groups with village representatives, trainer-farmers and farmers.

Anna Beerli, Short-Term Economic and Non-Economic Aspects for Adopting Dynamic Agroforestry in Cocoa Production in Ivory Coast, March 2014

www.barry-callebaut.com/sustainability/cocoa-sustainability/biolands-group

www.barry-callebaut.com/51?release=11576; www.repoa.ortz/documents/REPOA_RR_12-3.pdf

Contact person: Andres Tschannen, Country Director, Andres_Tschannen@barry-callebaut.com

Exchange rate: 1USD= 600FCFA

Margarita (Danone Mexico)

www.ecosysteme.danone.com/project/margarita-milk-club

Mexico



By leveraging its purchasing strength, Danone is able to develop a sustainable milk sourcing model to improve quality of life of 300 small milk farmers, aiming to triple farmer incomes by increasing yield, quality and herd size through training and harnessing existing public resources

Key insights

Providing a comprehensive suite of services (stable and fair purchasing contracts, intensive training, financing solutions, attractive prices for inputs) can enable to more than double the income levels of smallholder farmers in less than four years

An end-of-year bonus has given strong incentives for farmers to create loyalty and to respect their milk delivery commitments, creating a win-win situation where Danone in turn respects its commitment to provide training to the farmers

Smartly assembling and managing a multi-stakeholder ecosystem (input and equipment suppliers, farmers union, government, university, financial institutions, large farmers) has enabled Danone to leverage its position as an important purchaser of milk to mobilize existing resources to help smallholder farmers

The multiple operational and strategic benefits brought to Danone guarantee the long term sustainability of the Margarita program.

Description of the project

History / Key milestones:

2010, Danone Mexico's Purchasing Director Mariano Salceda, together with the Danone Ecosystem Fund³¹ and TechnoServe³² set out to create a model to reduce Mexico's milk production deficit and sustain smallholder farmers' development. Within a year, 103 farmers had enrolled in the Margarita project. The first phase of the project (2011-2015) focused on developing a revolving financing scheme, implementing a training program in partnership with the Universidad Nacional Autonoma de Mexico, recruiting farmers and setting up logistics. Between 2011 and 2014, UNAM graduated 23 agronomy technicians who trained 130 farmers via group training sessions in farms. In the next year these trainers started providing one-on-one training to Margarita's 300 enrolled farmers in 2014, and plan to continue the one-on-one training model until the program's end in 2020.

In 2012, Margarita won the CSR prize from CEMEFI (Centro Mexicano para la Filantropia). However, this same year, with the arrival of a new government in Mexico, they lost co-funding support for cooling tanks and training.

The model is being replicated in other countries such as Brazil and will be replicated in Guanajuato Mexico.

By 2014 the Margarita project had set up 2 collection centres and has more than doubled the income of its first cohort of farmers³³

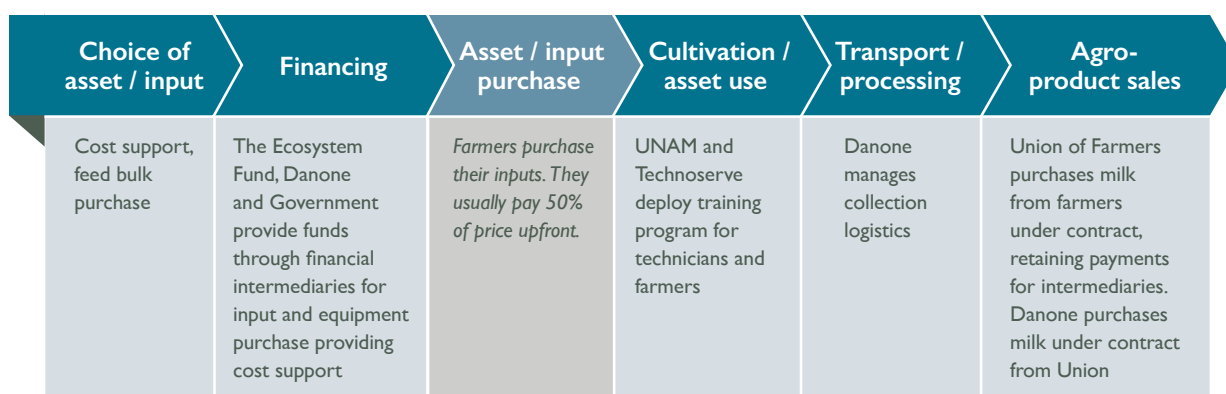
³¹ The Danone Ecosystem Fund was created in 2009 to strengthen and develop the activities of the partners who make up Danone's ecosystem. It finances initiatives to promote employment, micro-entrepreneurship and skills

³² TechnoServe is an international non-profit economic development organization that with enterprising people in the developing world to build competitive farms, businesses and industries. TechnoServe develops business solutions to poverty by linking people to information, capital and markets

³³ First cohort of 12 farmers joined in 2010 and have had lead time to benefit from program

Business model:

- **Role of key stakeholders in the value chain:**



- **Value proposition:** Margarita offers smallholder farmers a comprehensive suite of services in exchange for their commitment to sell all their milk to Danone and fulfil quality specifications:
 - » Two monthly visits of a qualified technical advisor to advice on various topics (feeding practices, processing an application for a Government subsidy, etc.)
 - » Stable and fair milk purchase contracts, with guaranteed prices and volumes. By bypassing the brokers Danone is able to offer a higher price to farmers. Brokers are known not to respect their purchasing commitments to farmers that find themselves suddenly unable to sell their milk (that cannot be stored), especially during the high milk producing season (which happens to be the one of low demand)
 - » Access to attractive credit to buy equipment (e.g., cooling tanks, milking machines) and inputs (e.g., silage), by suppliers or financial institutions, was made possible by a guarantee from Danone Ecosystem. This includes facilitating access to existing Government subsidies or soft loans that are seldom used by farmers because of lengthy and cumbersome procedures. To date Margarita has facilitated 190 loans/government support (31 tanks, 28 milking equipment or infrastructure, 54 cattle loans/subsidies, 12 alternative energies, and 65 feed financings).
 - » Attractive prices for quality inputs (e.g., silage, milking machines, concentrate, chilling tanks) that Margarita negotiates on behalf of participating farmers with the help from Posta El Cuatro, a large milk producer that has decided to support small producers as part of its CSR commitment. Some inputs are sold by outside actors and some by partners such as Madero Equipos de Ordeño. Feed was obtained approximately 20-30% cheaper at 12% interest rate, and cooling tanks approximately 15% cheaper at 6.75% interest rates compared to 24-50%
- **Operations:** The complex operational set up reflects the number of players in the ecosystem. Margarita has played a central role in the design of its architecture and governance and remains involved as a central supervisor:
 - » Upon joining the program, farmers go through a 9-day training session provided by the UNAM in a model farm, over the course of a year. This training is free of charge for farmers and paid for by the Margarita program
 - » Each group of 15 farmers is supported by one technical advisor (university graduates in agronomy and animal sciences) who visits farmers twice a month, advising farmers on technical matters (reproduction,

feeding...) as well as administrative matters (applying for a Government subsidy, a loan). Farmers currently pay for 10% of the cost of this training. This percentage is expected to grow to 30% in 5 years. The NGO TechnoServe recruits and trains the group of currently 20 technical advisors which are supervised by one TechnoServe manager and a Margarita field manager

- » Danone Ecosystem has provided €675,000 to Sofimex (a trust) through TechnoServe, to provide guarantee to the financial institutions (e.g., Caja Popular, Scotiabank) or equipment suppliers (e.g., Madero, a cooling tank manufacturer)
- » The farmers' union operates the Government-funded collection centres. Union of farmers tank trucks collect daily the milk from farmers' individual/shared cooling tanks and deliver it to the collection centres. Milk is then transported from the collection centre to Danone's biggest yoghurt plant in Irapuato, Guanajuato. Danone pays the Union, which in turn pays the farmers for their milk, minus the amount it pays on behalf of farmers to the financial institutions or suppliers that have provided farmers with a loan.
- » Technoserve, the UNAM and Danone form the education committee that provides training to farmers. Government co-finances this.
- » Technoserve, the UNAM and Danone form the credit committee to manage the trust and authorize guarantees for financial institutions
- **Revenue model:** Danone Margarita has a contract to purchase milk from the Union of farmers, who in turn purchases milk under contract from smallholder farmers. Danone takes the milk from this program and processes it into various products sold via traditional channels.

Farmer demand creation and user adoption strategies:

- **Customer acquisition:** Technoserve performs outreach activities, including a screening process: TechnoServe conducts a baseline survey and interview to evaluate farmer profile and willingness to grow and adopt best practices. Survey includes social, economic, productive/technical aspects of the farmer and the farm
The farmers' union plays a key role in helping recruit farmers as does word-of-mouth from satisfied neighbours. Farmers are notoriously conservative and understandingly wary of intermediaries that have promised support and not delivered.
To encourage farmers' adoption of new practices, farmers are able to exchange best practices among them in training sessions as well as visiting Posta el 4's farm to learn about new technologies
- **Customer retention:** A substantial end-of-year bonus (labelled as a "stock option" to farmers), equivalent to 2-4% of annual sales is paid to farmers that have been loyal suppliers for the whole year. The farmers that opt to sell their milk to another buyer (in exchange for a short term price hike) lose their bonus that is then shared among the "loyal" farmers. Farmers that opt out have no possibility to get back into the program. The stock option now has become a saving mechanism for farmers.

Regulatory and ecosystem opportunities and challenges:

- **Working with the government:** The Margarita project has been able to harness existing Government investments (e.g., milk collection centres) or commitments (e.g., subsidies For smallholder farmers) that were grossly underutilized because of cumbersome bureaucratic procedures. Margarita hired a full-time consultant specialized in facilitating access to public funding mechanisms for agriculture. When the new state government was elected in 2013 the whole set up was challenged but was reinstated thanks to the intervention of this consultant, the project's scale and results with Danone.

- Working with the Union of farmers: Danone approached the Union of Farmers to inquire about the collection centre in the area. The Union was invited to the program in order to group the farmers, operate the collection centre and perform payments. The Union in turn was able to offer a new stable commercial channel to its members, and operate a non-used collection centre.

Is the project impactful?

Improvement of productivity and incomes: Income levels of the first 2010 cohort of smallholder farmers have more than doubled in 4 years, resulting from:

- +19% in yield (litres of milk produced per cow from 15.3 to 18.2)
- +49% in price \$0.25/L to \$0.37/L
- +46% increase of cattle heads per farmer (24 to 35)

Comments:

- » In the calculations above, the farmer margin is assumed to remain a stable percentage of milk sales, which is probably conservative
- » During these years, the market price for milk has increased by about 20%.
- » The improvements enjoyed by the following cohorts is less (1.8 for 3 year old cohort, 1.7 for 2 year old cohort, 1.3 for 1 year old cohort) because of the lead time needed to produce results
- » Farmers also have significant further improvement potential from continuing to grow their cattle size, investing in other equipment such as solar systems (a 4 years payback given high electricity prices in Mexico) or bio-digestors, all investments that Margarita is facilitating, and translating improvements in quality of milk in better prices.

Other additional benefit: The farmers save 3 hours a day saved in milking cows, gain self-confidence and ability to plan ahead in a safer environment, and develop a more entrepreneurial mindset

Scale and reach

- **Total number of farmers reached:** 337 as of March 2015, with plans to grow to 438 in the next 4 years
- **Rate of penetration in target communities:** NA
- **Growth rate:** Growth rate of farmers reached: 36%/year over past 3 years
- **Ability to reach the poorest:** In the Mexican context a very small farm is 0-50 cows and 100-700 litre/day, small is <100 cows and 2000 litre/day, medium is 100-999 and 2400-34000 litre/day, big is more than 1000 and >30,000 litre/day, y mega farm > 5000 and 150,000 litre/day. Margarita targets farmers with less than 30 cows, 20 in average as they enter the program. A 20-cow farm is a sizable economic unit, representing a \$50,000 to \$80,000 in investment depending on the level of automation and generating about \$40,000 in annual milk sales. However, 23% of Margarita farmers own less than 10 cows.
- **Farmer satisfaction and loyalty:**
 - » Approximately 5-10% of farmers decide to opt out from the program every year (probably due to a higher price offer from an intermediary, or if they decide to sell their cows), a low percentage compared to traditional sourcing arrangements.
 - » This percentage has dropped to zero in 2015 given the milk oversupply situation, farmers that had opted out literally begging to be accepted back

Is the project (economically) sustainable?

For smallholder farmers: The project is profitable For smallholder farmers. Three types of improvements can be identified: increases in milk prices, in cow productivity and in the number of cows. Investments in additional cows are made attractive For smallholder farmers.

- **Better and more stable milk price:** \$0.25/L to \$0.37/L
- **Improvements in cow productivity:** 19% increase, but this requires some additional recurring costs (feeding, veterinary services, technical advisor). Some costs are paid by farmers and some by the project.
- **Additional in-kind support received at farmer level if any:** Farmers attend 9 training sessions for free, and also receive training twice monthly. Currently, training is being paid for by the Mexican government, Danone Ecosystem fund and 10% by farmers themselves, but goal is to get farmers to pay for 30% of training by the end of the program
- **Additional income generated by solution (for a single farmer):** 2.2X multiplier: Largest portion of income change depends on how many additional cows a farmer buys. Illustrative example: for a farmer who went from 24 to 34 cows: gross income growth of \$23,000 a year.
- **Additional net income generated by solution:** since 2011 Margarita has already generated more than \$1.2 million in additional net income (considering first year as baseline and subsequent year incremental income)
- **Sales generated by the project** Margarita farmers have sold more than \$25 million of milk to Danone since 2010, estimating more than \$6 million incremental sales (considering the volume and price sold the first year as baseline and only considering subsequent year incremental sales)
- **Breakeven for farmer:** Farmers have been able to pay without delay or default USD \$9,000 loans in 36 months. They have also been able to pay working capital in 12 months when this is a percent of their sales (in the case of silage financing). This type of farms with improvement programs can obtain USD 20,000 loans and pay in 48-60 months.

For the union of farmers running collection centres

- **Revenues:** Increase of revenues as farmers stop selling through brokers.
- **Operational profits (EBITDA):** NA
- **Additional in-kind support received at cooperative level:** Training (whose costs represent around 1% of milk sales), administrative support for subsidies and financing, volume purchase of inputs.
- **Planned breakeven date:** Collection centres operate at break even.

For Danone:

- **Revenues:** Danone does not have a P&L for Margarita project because it is not considered like an investment. The P&L for Danone Group is public but not by country or business unit.
- **Operational profits (EBITDA):** Operating benefits of the Margarita program outweigh its costs to Danone. Margarita milk price is competitive for Danone in addition to being able to diversify its supplier base and grow its milk supply gradually.

From a strategic, less quantifiable, perspective, Danone has gained significantly:

- » By diversifying its milk supply sources. Margarita now represents 12% of total supply in Mexico, expected to grow to 20%, with a source of milk that grows gradually with the needs of Danone (vs. large producers that come in steps)

» By furthering its reputation as a responsible corporation.

- **(Planned) breakeven date:** 2014-2015. In the long term, the project is sustainable because the commercial relationship between Danone and Margarita can be maintained without additional funding and farmers have learned and valued paying for training. The guarantee fund may have fulfilled its purpose of financing key infrastructure for farmers or may continue to operate with a different committee (e.g., farmer union, etc).
- **Financing:** for Phase I (2010-2015): Investment breakdown by actor: Danone Ecosystem Fund: €1.57m; Core Business Unit: €0.5m; government and farmers (investments in cows, cooling tanks and other equipment, collection centres and milk collection trucks): €2.6m (Margarita has only received grants from the government for training).

Positive externalities:

- Financing mechanisms being put in place that might benefit all farmers, not just those participating
- Dairy farmers in the region are reporting better support from buyers and better payment conditions (less waiting time).

Is the project environmentally sound?

Environmental sustainability strategy: It is not the main purpose of the project but Margarita aims to be environmentally sustainable. There is no clear indication that smallholder farmers operations are significantly better or worse than large ones. However, investments of farmers in equipment such as solar systems or bio-digestors will have a positive effect if they become more widespread (however, farmers need to have a critical size for such investment to be worthwhile for them). Environment targets may be incorporated to the project but in a later stage.

Observed impact of the project on the environment: NA

Is the project reinforcing the local social capital?

Involvement and empowerment of local organizations and their leadership:

- Margarita has had a positive impact on strengthening the farmers' union. The union's involvement in Margarita helps revive milk infrastructure and strengthens it overall, as it brings a stable market for their milk. The union gains governance and trust from its farmer associates.
- The program frees farmers from the exploitation of intermediaries.
- It has created role models among farmers: For instance, one of their participating farmers, Antonio, a 35 year old came back from the US where he was a worker in an assembly line. He has invested his savings into his father's farm and now his 12 years old son wants to become a veterinary.

Involvement and empowerment of women: Not targeted in particular by program but 10% of farmers are women and female family members attend trainings alongside the male farmers.

Is the project scalable and replicable?

Key challenges and possible solutions to scale further

- **Expand purchased amount to keep expanding the program:** Danone will eventually be limited by the amount of milk it can absorb, however alliances with milk buyers might be a way to help continue growing the program. Danone plans to reach 438 farmers in total by 2020.

What are external pre-requisites for the project to replicate in a new country (by order of importance)?

- Minimum farm size. Under its current design, the model requires a minimum size of farmers (i.e., average 20 cows) to justify the heavy spending on training. For the existing model to reach smallholder farmers cost effectively, they would need to be so close to each other that they could easily share physical infrastructure and make training easier. Alternatively, the model should incorporate community led approaches to provide greater leverage (e.g., "train the trainers" or "model farmers")
- Existing infrastructure. The model is based on leveraging existing government funded infrastructure (e.g., collection centres) or under-utilized fund subsidies. In addition, it benefited from good relationships with the farmer's union.

Sources

Field visit 9 March 2015, Estado de Jalisco, Mexico. Including interviews with Diego Durazo, Danone Ecosystem; Cristina Trigo, Danone Ecosystem; Mariano Salceda, SSD Vice President, Danone Mexico; Gabriela Campuzano, Country Manager, Technoserve; Eloisa Ayala, Margarita Manager, Technoserve; Fernando Saucedo, Danone.

Contact person: Mariano Salceda, SSD Vice President, Danone Mexico

Exchange rate: 1 USD=15 MXN

East Africa Dairy Development (Heifer International)

www.heifer.org/eadd/index.html

Kenya, Uganda, Tanzania



Facilitating the expansion of dairy infrastructure in the region, by investing into farmer-owned dairy hubs that provide access to market, inputs, information and services to over 200,000 smallholder dairy farmers

Key insights

East Africa Dairy Development (EADD) is a market activation project that succeeded in creating sustainable businesses that greatly improve farmers' livelihoods: EADD invested in strengthening farmer-owned producer organisations (POs) that each collect milk from thousands of small producers through decentralised collection centres feeding a central chilling plant. Out of the 82 that were supported by EADD's first phase (2008-2013) in Kenya, Uganda and Rwanda, 51 have exited the programme and are now running without any support from EADD; 29 are still requiring support; 2 were dropped because of poor governance. In the same 5-year period, the regional average income of dairy farmers has doubled, and the average volume of milk sold by POs has grown fourfold.

EADD's experience shows the need for a systematic exit strategy to ensure the long-term sustainability of all producer organisations after support is withdrawn: EADD's first phase did not include a systematic approach for exiting POs out of the programme. Some POs who were not sufficiently prepared for exit experienced a decline in performance. To make sure POs remain resilient businesses, EADD's second phase is bringing in partners (permanent development players and county governments) to take over support and overview of POs after the project's funding ends in 2018. It is also helping set up national federations of dairy hubs, to take over the development of extension services (in particular training), by levying a commission on POs.

EADD has set up a comprehensive producer organization sustainability assessment tool (POSA) to monitor and improve the competitiveness of the POs it supports: The operational and financial performance of each PO is assessed each year and key sustainability gaps are prioritized. POSA has emerged from lessons learnt in the first phase of EADD as a fundamental basis for POs strategic direction and resource allocation. Direct support from EADD is generally withdrawn once POs reach a certain standard of sustainability, after which they are expected to operate independently.

Providing valuable extension and financial services is a strong "carrot" to reward loyal farmers: POs supported by EADD ensure loyal farmers have access to inputs, assets and services (including cash advances, loans and savings) through a check-off system whereby the cost of each item is deducted in instalments from their monthly payment on milk deliveries. As insufficient or irregular milk delivery prevents access to these services, this serves as a strong incentive to ensure continuity of supply from farmers, and discourage side-selling to other buyers even if higher prices are offered.

Ownership of the POs by farmers helps align farmers and EADD's interests: Most POs are cooperatives or public companies. Farmers supplying their milk can invest in the hub by buying shares of the business, which in turn allows them to elect the Board of Directors. The participation of farmers in the governance of their dairy helps ensure the alignment of interest between buyer and sellers. In POs where awareness among farmers of their position and rights as shareholders is high, loyalty of farmers and continuity of the supply of milk is strengthened.

Description of the project

History / Key milestones:

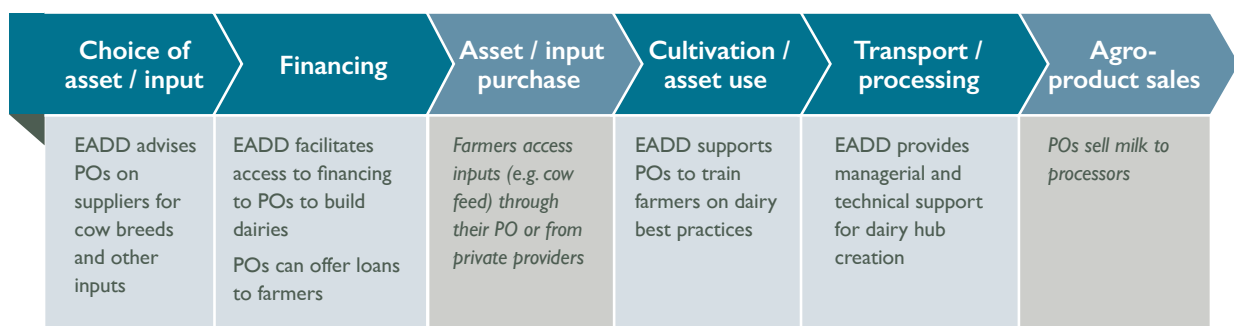
Heifer International is a non-profit dedicated to eradicating hunger and improving livelihoods through the development of livestock. In 2008, Heifer obtained a \$42.5m grant from the Bill and Melinda Gates foundation to help rural farmers in East Africa increase their incomes by revitalizing local dairy value chains. Milk yields per cow were only 1/5 of those in other African regions due poor practices and inefficiencies in the value chain. Heifer brought on Technoserve, the World Agroforestry Centre (ICRAF), the International Livestock Research Institute (ILRI) and the African Breeders Service (ABS) as the main implementing partners of the East African Dairy Development (EADD) project.

Phase 1 (2008-2013, EADD I): The project set up and supported 82 producer organisations of small dairy farmers to build or renovate their own dairy hubs in Kenya, Uganda and Rwanda. Each hub typically includes several collection points where milk is collected from farmers and a central chilling plant where it is chilled before being transported and sold to processors. As it soon became evident that farmers required more intensive support, POs started providing training, veterinary services (including artificial insemination), inputs (e.g. feeds, and medicine for the cows), as well as financial and health services for the farmers and their families. Farmers that supply a hub can also become shareholders in the producer organisation. By 2013, 82 POs were sourcing milk from over 200,000 farmers in Uganda, Rwanda and Kenya.

Phase 2 (2013-2018, EADD II): This phase aims at reinforcing 29 existing POs, and reaching an additional 136,000 farmers by creating 16 new POs in Uganda and 10 in Tanzania. The vision of success for EADD is to transform the lives of resource-poor farming families with improved market access to a wealth-creating, robust dairy value chain that benefits all industry stakeholders.

Business model:

- **Role of value chain stakeholders**



- **Value proposition:**

To farmers:

- » Improved productivity and income: Dairy farmers in East Africa suffer from low cow productivity (due to low production of local breeds, poor fodder quality and veterinary practices) as well as limited access to markets (selling either at the farm to local traders at very low prices or in markets at a higher price but at a high cost or time of transportation). As access to market is unreliable, much of the milk is wasted since it cannot be stored for more than a few hours unless it is chilled.

- » EADD turns this around by helping producer organisations offer farmers a reliable and profitable channel for selling their milk. Producer organisations ensure the daily collection of milk from the farm at a fixed price, paid in a lump sum at the end of each month.
- » On top of access to market, POs offer inputs (e.g. animal feeds and medicine), services (e.g. artificial insemination to cross-breed local cattle with more productive exotic breeds) and training on good cattle rearing practices. Farmers are able to afford those with no upfront investment as payments are deducted in instalments from the payment of their milk supply through a check off system.
- » Access to financial services: this check-off system has also allowed POs to offer small (\$2-10) cash advances to farmers. Some POs have even set up their own cooperative banks that provide loans at preferential rates for more significant investments, as well as savings accounts and health insurance.
- » Ownership of the PO: To ensure ownership of POs by farmers, EADD encourages loyal farmers and suppliers to buy equity into the business. During set-up stages, EADD encouraged farmers to organise themselves into groups of 15-20 and elect leaders in order to increase outreach and effectiveness of farmer training. These group leaders then elect the board of directors of the PO from among themselves, as well as committees to supervise operations, finances or accounting and increase transparency. This allows aligning the incentives of the farmers and of the dairy, which would otherwise be at odds. Ownership and involvement in the governance of the dairy creates loyalty and empowerment among farmers.

To POs:

- » Initial financial support: In phase I, EADD developed a financing mechanism which ensured farmers were able to set-up milk chilling facilities within a short time frame. This was in response to experience in the dairy value chain where financiers were not interested in funding farmer owned ventures and considered them a high risk investment. In this EADD I chilling plant financing strategy, 10% of the total cost of the investment was to be share contribution from farmers which guaranteed their involvement in making the plant succeed; EADD provided 30% (via a \$5 million investment fund) as an interest-free loan channelled through local financial institutions. This interest-free loan was meant to work as a loan guarantee to the banks, so that they could agree to fund the remaining 60%. The corresponding total sum of around \$150,000 allowed each PO to build a chilling plant of 5-20,000 litres capacity, as well as acquire trucks to transport milk from 1-3k farmers in up to a 30 km catchment area.
- » Operational and managerial support and infrastructure: EADD teams help professionalise the management of the plant by facilitating the development of strategic plans, formalising processes in finances, human resources, procurement, and drafting a board charter or code of conduct . In Kenya, EADD equips all plants with its home-grown "DaPower" IT system to cost-efficiently manage dairy transactions (deliveries, payments, issuance of pay slips, etc.).
- » Technical support: In EADD I, experts from technical partners (ICRAF, ILRI, ABS) trained dairy staff, who in turn delivered training on good cattle-rearing practices, provided veterinary expertise or became artificial insemination technicians. In EADD II, the approach became more facilitative, bringing in government and private sector extension service providers, while encouraging the development of lead farmers and demonstration farms within the POs.
- » Assessment of progression towards sustainability: Each year, EADD audits and grades POs within the programme on a set of sustainability criteria which include financial health, engagement with output market, management and leadership, access to dairy inputs and services, CSR and partnerships, member loyalty and on-farm impact. The PO overall performance then determines their ranking from stage 1 to 5 (a scale in

which 5 is most advanced and 1 is start-up phase). Once Stage 3 is reached and a producer organisation is deemed sustainable, it is gradually exited from the programme to continue operating without any support from EADD. In Kenya, 11 POs have graduated and are still financially sustainable.

- » EADD support has allowed producer organizations to grow their monthly milk production from 250,000 litres in 2008 to nearly over 1 million litres in 2012 on average. As a result, POs negotiate better prices with the processors: the average milk price for the farmer in the region doubled from \$0.15 per litre in 2008 to \$0.3 per litre in 2012.

To local businesses and service suppliers: The growth of POs triggers the development of a web of ancillary enterprises (e.g., transportation, construction, hardware, cow feed) in the area.

To milk processors: EADD has allowed processors to source larger and more constant volumes of better quality milk, and thereby grow the local offer for dairy products.

- **Operations:**

- » Farmers milk their cows in the morning and the evening, placing the milk in sealed containers (sometimes provided by the PO).
- » POs organise the daily (and sometimes twice-daily) collection of milk from farms to collection centres by motorcycles or trucks, and from collection centres to the chilling plant. Transporters are mostly independent entrepreneurs paid a commission on each litre delivered, although some large POs have invested in their own vehicles and staff.
- » Once milk has reached the chilling plant, it is tested for quality (presence of alcohol, percentage of fat). If it fails to reach the quality standard a refusal slip is issued to the farmer. If it is approved, it is weighed, filtered and chilled. The corresponding amount is registered to an account held by the dairy and the farmer is issued a slip registering the transaction.

- **Revenue model:**

- » Farmers are issued with monthly statements detailing all deliveries credited for the last month, as well as any deductions to pay for milk delivery, inputs, assets or services. Farmers can then reclaim their balance in cash at the PO, at local dedicated branches in some larger POs and even through general ATMs in some cases where dairy banks have partnered with commercial banks.
- » POs collect revenues from processors with which they sign yearly contracts, and redistribute them to farmers at the agreed price. They also manage payments to service providers (e.g. input providers, transporters).
- » EADD itself is entirely grant-funded and does not have any revenues.

Farmer demand creation and user adoption strategies:

- **Customer acquisition:** a minimum number of farmers (depending on the country, 1,000 in Kenya, 200 in Uganda) must come together to form a PO before EADD invests into setting up a chilling plant. This is often achieved by pooling together members from several existing cooperatives or businesses in the same area. EADD starts by convincing farmers to join forces. Directors of cooperatives or businesses are invited to visit successful POs. Once set up, POs typically grow in members exponentially through word of mouth in the first 2-3 years. When the maximum capacity of the main chilling plant is attained, POs invest in satellite coolers distributed across the catchment area, which reduce the distance the farmers travel while improving milk quality as milk travels a shorter distance to the coolers.

- **Customer retention:** as observed in field visit and farmer interviews, access to extension services is the main driver for loyalty of farmers. If insufficient or irregular volumes of milk are registered on a farmer's account, he is unable to access services, advances or loans. Loyalty due to ownership of the PO is also important for larger farmers who possess more shares and are more involved in the governance of the business.

Regulatory and ecosystem issues: EADD works closely with government officials to ensure practices are in line, but also help shape national policies. For instance, in response to EADD's efforts, the government of Rwanda launched a National Dairy Strategy in 2013, promoting the ownership of more productive hybrid cows.

Is the project impactful?

Improvement of productivity and incomes:

- Improved feeding and better care of cattle can instantly double milk production per cow
- Cross breeding indigenous breeds with more productive foreign breeds through artificial insemination can also double productivity in 5 to 10 years
- During phase I of EADD, the average price of milk to dairy farmers in the region doubled to \$0.3 per litre of milk
- A survey conducted among EADD farmers showed that, in that same interval, dairy income per household per day increased by:
 - » 124% in Kenya
 - » 64% in Rwanda
 - » 164% in Uganda

This translates into a weighted average of over 125%.

Other additional benefits:

- Better livestock-rearing techniques (e.g. switching from grazing to barn feeding) produce significant time and labour savings
- The financial institutions set up by producer organizations have collected \$11m in savings from farmers

Scale and reach

- **Total number of farmers reached:** 200,000 farmers reached by the program through 82 POs in Kenya, Uganda and Rwanda
- **Rate of penetration in target communities:** POs typically capture 50% to 90% of milk producers in their catchment area (up to 30 km)
- **Growth rate:** EADD started in 2008: 200,000 farmers were reached in 2013; 336,000 are targeted by 2018
- **Ability to reach the poorest:** The project's 200,000 beneficiaries earn less than \$2 a day
- **Farmers' loyalty and reasons for leaving:** In the dry season, when the grazing is scarce, dairies can lose up to 50% of milk due to low productivity per cow and increased competition from local informal traders offering higher prices
- **Acceptance and usage:** Dairy cows are common in East Africa. Local "longhorn" breeds are resilient but produce low volumes of milk. They have been bred with exotic high yield breeds (such as Heifer) to various degrees in different countries.

Is the project (economically) sustainable?

For small farmers:

- **Initial cost:** Around \$10 per farmer as part of the optional purchase into the dairy capital
- **Recurring cost:** milk production costs amount to around 40% of selling price (including feed, labour; veterinary costs)
- **Additional in-kind support received at farmer level:** Training on farming and business skills; exchange visits organized with other farmers to demonstrate best practices
- **Cost of best alternative(s):**
 - » Mobile traders who pay cash at the farm, but give no visibility on prices or regularity
 - » Village or town markets, offering higher prices but at a high transportation cost and not every day of the week.
- **Affordability:** Access to inputs, assets and services is paid off the milk deliveries
- **Additional net income generated by solution:** during Phase 1 (2008-2013), the average yearly revenues to farmers were \$27 million in milk deliveries, 50% of which can be considered as incremental given that the average dairy income in the region has more than doubled thanks to the programme.

For POs:

- **Revenues:**
 - » From milk (70-90%): Average yearly milk intake of 1 million litres (from 250,000 litres before phase 1) = \$350,000 average yearly revenue (with milk price at \$0.35/litre)
 - » From other services (sales of inputs, agro-vet and financial services) (10-30%): \$40,000 to \$100,000 yearly revenue
- **Operational profits (EBITDA):**

In 2013, POs showed an average net profit representing around 4% of average income from milk sales

 - » From milk: in Kenya, among the 11 dairy hubs that have already reached profitability (out of 21 started in 2008), the average gross margin is at 15% and operational costs at 12% of selling price. The remaining 3% profits are directed towards repayment of the initial debt if still outstanding, are invested in assets (e.g. additional chilling capacity) or distributed as dividends to farmers.
 - » From other services: 10-20% gross margin on inputs and assets, 10-12% interest rate on loans (with 1-2% in collection costs)
- **Additional in-kind support received at cooperative level:** EADD helps hubs build strategic plans, communication plans, reporting tools, HR processes, procurement and quality systems, and also provides IT tools
- **Planned breakeven date:** At the time of writing, in Kenya, 11 out of 21 plants were profitable. Recent data for other countries were not available

For the central organization: EADD does not generate revenues and is funded entirely by a \$68 million grant from the Bill and Melinda Gates Foundation (\$42.5 million for Phase 1, \$25.5 million for phase 2)

Is the project environmentally sound?

Environmental sustainability strategy: Environmental strategies are developed at the PO level in compliance

with regulations from the National Environmental Management Authority which delivers an annual licence. These requirements require for instance the establishment of a waste disposal system

Observed impact of the project on:

- **Land use and sustainable management:** The project is promoting the planting of fodder trees that also prevent soil erosion
- **Emissions of greenhouse gases and other air pollutants:** Increasing the production per cow reduces emissions per litre of milk produced; Some POs are selling bio-digesters that provide renewable energy replacing wood and kerosene.

Is the project reinforcing local social capital?

Involvement and empowerment of local organizations and their leadership:

- **Ownership of POs:** Voting at the Annual General Meetings, receiving dividends and electing officers help foster this sense of ownership and empower farmers
- **Transparency:** Group leaders (including the directors) relay information and decisions to individual farmers (some large hubs are publishing monthly newsletters).
- **Farm business services:** hubs create local employment for transporters, feed producers and other service providers.
- **Dairy Management groups (DMGs):** farmers can pool their resources to access services and form savings group when POs have not established village banks

Women involvement and empowerment:

- Women are typically heavily involved in milk production (70% of labour) but are generally poorly represented in dairies. By promoting joint decision making, EADD has helped increase the representation of women to 30% (from 15% before the programme). It is also fighting the low presence of women at training sessions by organizing trainings at times when women are typically not busy with household chores.
- Gender equity is one of the main pillars of Phase 2, with the objective of increasing the number of women supplying milk to hubs by 30% by 2018.

Is the project scalable and replicable?

Key challenges and possible solutions to scale further

- **Ensuring continuity of supply despite the seasonality of production:** Drops in supply due to low availability of grazing in the dry season harm the profitability of hubs. POs encourage the purchase of complementary feeds to sustain productivity throughout the year.
- **Stability of prices for milk:** Upwards vertical integration by processors building their own collections and chilling centres may threaten POs' negotiation power. Some POs are anticipating this threat by investing in processing plants or creating other distribution channels for dairy products (milk bars, milk ATMs...).
- **Governance:** Both of the producer organisations that were dropped by EADD suffered from dysfunctional governance. In Kenya, some producer organisations are still registered as private limited companies, which does not allow ownership by farmers. Others suffer from interference from directors on the management team. EADD Kenya is supporting the shift to public limited companies and setting stricter management and controlling processes.

- **Exit strategy:** see Key insights

External pre-requisites for the project to replicate in a new country

- **Geological and biological specificities:** non-arid areas where grazing is abundant or fodder can be grown
- **Demographic specificities:** existing practice of cattle rearing and significant local milk consumption

Sources

Visit on 2nd and 3rd of March 2015 to EADD local headquarters in Eldoret, Kenya, including interviews with Maclean Egesa Mang'enl, Country Program Manager Heifer International; Caroline Kosgei, Business Development Manager Heifer International; Kenneth Matonya, Senior Business Advisor Technoserve; Visit to Tanykina Dairy Plants Ltd, Sirikwa Dairies and General Ltd, near Eldoret, Kenya.

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Contact person: Mr. Rakesh Kapoor, Regional Director Heifer International, Rakesh.Kapoor@heifer.org

Exchange rate: 1 USD = 92 KES

Empresa de Comercialização Agrícola Ltda

www.agdevco.com/portfolio.php?projectId=5

Mozambique

Processing, marketing and selling the production of about 2300 directly contracted smallholder farmers in central Mozambique, as well purchasing from another 2000 farmers in surrounding communities

Key insights

Choosing the crop carefully allows building a more compelling value proposition: Empresa de Comercialização Agrícola Ltda (ECA) has tried a number of crops before settling on maize. Like many other projects, it had to choose between cash crops that were in high demand on international markets, but with a high price volatility, and more local ones. In the end, ECA chose to focus on maize – a local crop, and on farmers for which maize is the main crop - mostly cultivated as a mean of subsistence. With ECA, farmers can now sell part or all of their harvest, often at a (quality) premium. ECA's value proposition is: "we want to buy what you already produce and help you produce more and better of it". This allowed enrolling many farmers very quickly at the beginning of the scheme. Yet, ECA now needs to grow and diversify the commercial partners it sources for (or build its own brand and market for maize meal), if it wants to trade and process larger volumes, while capturing a premium for quality.

Leveraging group dynamics helps enrolling more farmers, faster and more sustainably: ECA lets groups of farmers come together, as a pre-condition to accessing the program. This allows ECA to provide group lending, as well as make the training more cost-effective. It also creates more solidarity among farmers when works needs to be done in the fields and more compliance when it is time to sell to ECA (vs. other traders). As there is limited turnover in groups, while some individual members may change from year to year, this also gives more stability in the farmers' base that ECA works with.

Value proposition to farmers needs to evolve over time, to accompany them in their growth: ECA proposes a range of input packages to farmers, to encourage and allow them investing further as they gradually improve their yields. However, few farmers 'graduate' to the next package, and the large majority sticks with the basic one. This is certainly due to the fact that the bigger packages include fertilizer and that most farmers are inexperienced in the benefits of using fertilizer and this will need further education and promotion to convince farmers of benefits associated with their use. However, the reluctance to 'graduate' to the following packages may be due to the pricing of the various packages (the 2nd and 3rd ones costing significantly more than the 1st one), as well as the fact that the added benefits for farmers (in terms of yield and income increase) that come with the bigger packages may appear less attractive in comparison to the investment required.

On the other hand, ECA is only able to offer extension services to about half of the farmers it works with, given current economics, revenue model and volumes (TA costs are not factored into the packages price). Understanding how to help farmers grow further and adopt larger packages would allow ECA to continue investing into more new and smaller farmers, while possibly earning better margins with the better-off ones, in a way that is more economically sustainable.

Innovative governance arrangements needed to preserve ECA's dual mission of building a thriving business while supporting small-scale farmers: ECA is a greenfield venture, made possible by AgDevCo, an impact investor that identified, enrolled the management team, and pumped in patient capital. The vision and ambition of both investors and management team are fully aligned now, as they want to transform the lives of small-scale farmers in Mozambique for the better. However, as ECA grows and AgDevCo starts looking for potential exits, ECA has to find ways to evolve the governance in such a way that the social mission of ECA remains

intact. A possible avenue is to transfer part of the shares back to the farmers, who would then have a direct say into the running of the company. While this arrangement would come with its own set of challenges, ECA could learn from another AgDevCo investment in Malawi (see the “Phata Cooperative” example at the end of this case study), whereby AgDevCo managed to invest directly into a cooperative, while leveraging a professional farm management company. Another venue, which the team is considering, is to carve out some dividend payback out of the credit repayments for farmers who do pay back and sell their produce to the project.

Description of the project

History / Key milestones:

ECA is a private agro-processing and trading company purchasing from smallholder maize farmers and surrounding communities in Catandica, Mozambique. It was launched in 2011 with a grant from the BAGC Catalytic Fund, covering the costs of setting up a few demonstration plots as well as one-off costs to conduct studies (e.g. farmers’ mapping), to organise farmers’ groups and develop a business plan.

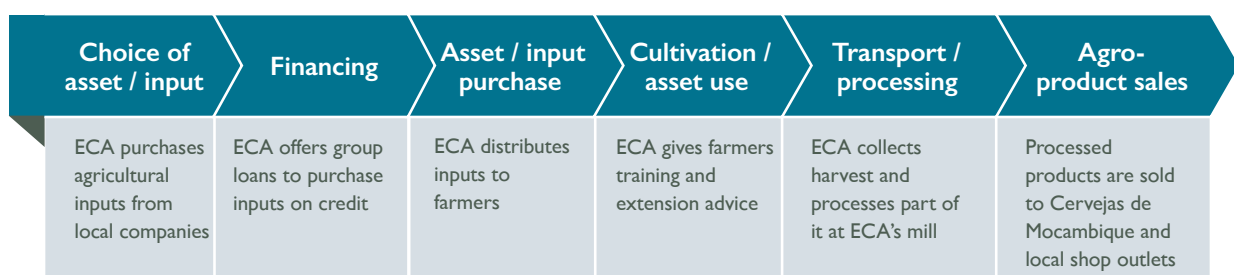
The BAGC Catalytic Fund is managed by AgDevCo, a UK social impact investor and agribusiness project developer, which operates in six African countries. AgDevCo invests patient capital in the form of debt and equity into early stage agribusinesses and promotes the launch of new agribusiness opportunities. As of May 2015, AgDevCo has 44 investments, reaching out to 22,000 smallholder farmers in 6 countries for a total \$50m capital invested. The Beira Agricultural Growth Corridor (BAGC) Catalytic Fund was launched in early 2010, in partnership with the Government of Mozambique, private investors and donor agencies (DFID, Norwegian Embassy and Dutch Embassy).

AgDevCo, with BAGC funding, acquired 55% of ECA equity, part of which it is holding in trust for the farmers. The core local team that started ECA owns the remaining 45%. As a social impact investor, AgDevCo’s goal is to exit by leveraging commercial capital while securing the development impact created. In the case of ECA, it will look into the possibility of transferring its shares to farmers, in addition to other investors.

AgDevCo has provided both debt and equity financing to ECA since its inception most of which has been used for working capital and capex. During the 2012-2014 period, ECA was able to deploy this capital to invest in developing its central warehouse site, building new storage facilities, installing a maize mill, a weighbridge and constructed a permanent office block. Further to this, commercial bank facilities have been used since 2011 to offer credit to farmers. ECA moved from the provision of loans directly to farmers from local banks in 2011 & 2012 to the company securing loans on behalf of farmers through local banks at a lower interest rate, by providing a guarantee to the bank.

Business model:

- **Role of key stakeholders in the value chain:**



- **Value proposition:**

- » ECA runs an extension farming scheme, whereby it provides small-scale farmers with a guaranteed market for maize - a local consumption crop, at a slightly higher price than local competition. To its contracted small-scale farmers, ECA provides 3 assistance packages that comprise different mix of inputs sold on credit, at a price lower than retail, as well as technical assistance over the whole planting and harvesting period. Contracted farmers typically own 0.5 to 4ha of land, and enter into a contract that requires them to sell their harvest to ECA. The credit runs over a period of 8 months, starting from the provision of inputs until the harvest, when it is sold to ECA and credit is deducted from the payment. ECA experiences some level of side-selling, which is limited by the fact it offers a better price than others. It does not try preventing this side-selling through credit provision. If farmers can sell at a better price elsewhere, they can do this and repay the credit in cash. However, as it works through groups of farmers, this works as a self-monitoring system whereby if one member defaults, all members of the group are responsible.
- » The packages are offered gradually: the 'basic' package includes only seeds, and is offered as an 'introduction' to contract farming with ECA. The 'medium' package comprises seeds and top-dressing fertilizer, while the 'full' package – provided only to farmers who have been in the program for three harvests- comprises seeds, basal and top-dressing fertilizer. On top of the 'gradual' introduction of packages, ECA also waits to see the land actually prepared for cultivation to deliver the inputs, as a way to avoid the re-sale of inputs and verify actual commitment of farmers.
- » ECA offers training in agronomy practices, but also helps farmers' group self-manage. Training is delivered through field technicians. Each technician is allocated ~20 groups of 15-25 farmers each (350-400 farmers in total), which s/he visits roughly every two weeks. The technical assistance evolves over the harvest cycle, e.g. on land preparation, planting, growing, harvesting, storage and selling. If any issues, the technicians also help address it (e.g. spraying the fields if pest infestations).
- » At harvest time, transport is organized for the farmers, and payments are done on delivery, in a transparent manner (using scales).
- » Farmers do not pay for extension services, even though some operation costs are reflected in the package costs. Credit is provided at 15% interest rate on the local currency (for a harvest cycle). Packages are priced \$8 for the basic, \$26 for the medium and \$45 for the full package as of end 2014. Each package is sufficient for 0.25ha of land. Pricing and purchased volumes of maize are discussed before the start of the season. ECA typically pays 19-20 \$cents /kg, which is slightly higher than the market price, given the quality is often higher as a result of the technical assistance provided.

- **Operations:**

- » Trainings are delivered by a team of 5 technicians, who either organise 'field days' – i.e. demonstrations at selected plots, or talk to the groups at the storage shed, or visit farmers for individual follow-up. Topics cover good agronomic and conservation practices, increased production techniques, fertilizer application, marketing, etc. In the field, Monday is used for training and planning, while the rest of the week is spent visiting farmers, based on a set register of activities for the week.
- » ECA buys inputs in bulk from two local input companies (one of which is also an investee of BAGC Catalytic Fund), and sells them to the farmers at cost, allowing for a competitive price compared to local retail. Input provision will be opened to more companies in 2015, which will be offered to try their products on demonstration plots. Inputs are provided on credit thanks to seasonal loans that ECA takes with a local bank, the interest on which it charges to the farmers at cost (ECA provides a repayment guarantee to the bank to lower the overall interest rate).

- » Before harvesting, technicians visit the farmers' groups, negotiate prices and volumes, and arrange for transport. On the collection day, farmers bring their production to the local storage sheds, from which ECA trucks bring the harvest to the ECA warehouse, where the maize is weighted for everyone to see and tested for moisture and quality. Payment is done on delivery (after deduction of the credit). Many team members are present at the warehouse to avoid any potential side transactions.
 - » ECA buys grain from the smallholder farmers on behalf of Cargill. Under this agreement, it can also buy back the grain from Cargill for processing. ECA owns its own milling factory, where it processes the grain into grits to sell to Cervejas de Mocambique (SAB Miller Company) and maize meal to sell to local shop outlets (since 2015).
 - » ECA's staff comprises a management team (CEO, CFO and COO), a team of 5 field technicians, an administration team and a number of support staff (over 60 staff in total as of end 2014) Technicians have basic secondary education and are trained on the job. There is no staff turnover among technicians since the company's start.
- **Revenue model:**
 - » ECA's source of income consists of a management fee, paid by Cargill for the sourcing, storing, and buying arrangement. ECA provides inputs and credit at cost, even though some operation costs (linked the administration of inputs and loans) are reflected in the package costs. Farmers do not pay for extension services.
 - » ECA is now looking at ways to increase the proportion of processed products, which fetch a higher margin. Since 2015 ECA has started processing maize flour for sale through its own Bella Xima brand on the local market.

Farmer demand creation and user adoption strategies:

- **Customer acquisition:** ECA holds meetings across its area of operations to explain its scheme and offering. When a community shows interest, it requires farmers to form groups of 15-25 members of their choice, and helps them with basic organization. However, the bulk of the effort goes into "checking in" with the 100-130 previously contracted groups, every season, to discuss challenges and re-register them if they are willing to go for another round. These efforts typically last 4-6 weeks, to visit all previous groups and register ~10-15 new ones in the areas where ECA is present. The group enrolment efforts are led by the COO, assisted by a team of 5 technicians. Groups of farmers also help identify demonstration plots, where trainings are being held, and proposed inputs utilized.
- **Customer retention:** 100% credit recovery indicates limited side selling. In fact, ECA experienced cases of farmers who brought 'more than contracted' volumes for sale, as ECA is paying a quality premium, trying to upsell lower quality maize. Given the high volatility of prices in maize and the informality of the sector, it seems that most farmers show loyalty, valuing the transparency (transparent grading and weighing process), on-time delivery of inputs and payment, support and convenience offered by the program.

Regulatory and ecosystem issues: The government imposes a 3% tax for farmers selling their harvest. As farmers are often not able to comply, that is now paid by ECA, and other traders. ECA is trying to lobby for the abolition of this tax. Another issue affecting the project is the input give-away actions from NGOs, charities and the ones that stem from local election campaigns.

Is the project impactful?

Improvement of productivity and incomes: Based on estimated figures, contracted farmers' income for a plot of 0.75ha increased from \$110 to \$200 (basic package), to \$270 (medium package) and to \$405 (full package) due to yield increases, based on constant base raw maize price (assumes constant price at \$0.18/kg and no significant savings on the purchase of inputs). Farmers tend to go for the basic package: 74% of farmers used the basic one, 23% the medium one, and 3% the full one in the 2014 season. ECA is also able to pay a small quality premium to farmers because of the off take agreements it maintains with its buyers (not included in the above figures).

Other additional benefits: An independent study has shown that not only contracted farmers are adopting better agriculture practices but also the overall community by way of demonstration.

Scale and reach

- **Total number of farmers reached:** In 2014/2015, ECA is working with roughly 2300 contracted farmers. It also estimates that, through indirect sourcing, it also supports another 2000-3000 farmers. In 2014, ECA was present in 199 villages, working with one farmers' group per village, counted 79 demo plots and 39 storage sheds.
- **Rate of penetration in target communities:** ECA works (directly or indirectly) with ~2% of the population of the Manica province.
- **Growth rate:** 862 contracted farmers in 2011, 2495 in 2012 and, 2575 in 2013, and about 2300 in 2014. Value of volume purchased (from contracted farmers and through intermediaries) rose from \$255k (1193 MT) in 2011/2012 to \$871k (3495 MT) in 2012/2013, and \$1.3m (6166 MT) in 2013/2014. The increase in volumes purchased has been driven by demand from ECA's mill and Cargill, and is partly covered by ECA's sourcing from farmers in neighbouring communities it does not directly support. Growth in the number of ECA farmers since 2012 has been limited by the milled volumes, driven by demand from Cervejas de Mocambique and for its Bella Xima maize meal. The 2014 elections, where inputs were distributed for free, also limited the possibilities to grow the program among new farmers.

Ability to reach the poorest: The majority of farmers own 0.5ha of land (59%).

Farmer satisfaction and loyalty: Farmers' groups re-enrol year after year, and ECA has recorded 100% repayment to date. There has historically been an estimated 1% turnover among group members, mostly linked with trust issues with a person within the group (i.e. the group does not want to 'guarantee' him anymore), or with persons moving places. However, in 2014, there was very limited growth in new farmers and turnover was higher than normal due to specific political circumstances and not related to farmer satisfaction and loyalty. Word of mouth also seems to work, as ECA found groups already formed up in new communities, who had heard about the scheme.

Acceptance and usage: Maize is a crop that farmers traditionally cultivate for their own consumption. According to ECA's team estimates, for 80% of the farmers, maize is the main crop, and was previously cultivated as a mean of subsistence. They can now sell part or all it to ECA, often at a premium. ECA comes in with an interesting value proposition, as it tells farmers "we want to buy it and help you produce more and better of it". Farmers show different willingness and abilities to evolve their practices: according to the current experience of ECA's field team, an estimated 50% want to learn and improve, another 15% do not attend the training sessions but show good results, while the rest is more difficult to work with.

Is the project (economically) sustainable?

For small farmers:

- **Initial cost:** NA
- **Recurring cost:** Packages are priced \$8 for the basic, \$26 for the medium and \$45 for the full package as of end 2014. Each package is sufficient for 0.25ha of land. This includes a recharge at cost for the inputs, transport related to the distribution of inputs, 15% interest on the bank loan and 1.5% establishment fee charged by the bank to set up the loan. It also includes a 4% admin fee which is charged to the farmers in order to cover the costs of administering the inputs and loans. Farmers do not pay for extension services, and these costs are not factored in.
- **Additional in-kind support received at farmer level if any:** Training and access to low-interest credit. Credit is provided at 15% interest rate on the local currency (for a harvest cycle).
- **Cost of best alternative(s) and savings made thanks to project:** By buying product in bulk ECA is able to offer inputs to farmers at an estimated 20% less. Interest rates on credit provided directly to farmers hovers between 36-60% per annum compared to 18% charged by ECA.
- **Affordability:** The packages represent respectively 7%, 13% and 17% of the farmers' income (assuming they have captured the income increases brought in by the previous packages). It therefore appears that the biggest package represents a significant share of their income.
- **Additional net income generated by solution:** Around \$260,000 of net additional income for 2,300 contracted farmers with 0.75ha on average
- **Breakeven for farmer:** Less than one year whatever the package.
- **For partners (local bank):** Local banks provided loans directly to farmers in 2011 and 2012. However the interest rate was found too high. Since, ECA takes a loan with a local bank on behalf of farmers, and it provides a repayment guarantee to the bank to lower the overall interest rate. Thanks to this arrangement, the interest rate was lowered from 4% per month if done by the farmer individually to 15% per annum through ECA.

For the central organization:

- **Revenues:** \$1.4m turnover in 2013; \$1.9m in 2014
- **Operational profits (EBITDA):** \$110,000 in 2014 (unaudited), and breakeven forecasted for 2015
- **(Planned) breakeven date:** ECA is targeting breakeven at EBITDA level in 2015. The achievement of break-even stems from a combination of a reduction in the cost per farmer as a result of higher volumes and additional support from the milling business once it is operating at capacity.
- **Repayment rates:** 100% repayment rates in 2014
- **Financing:** To date, AgDevCo has invested in the form of grants, equity and debt totalling about \$2m. Further to this it has been able to leverage private sector capital.

Positive externalities: NA

Is the project environmentally sound?

Environmental sustainability strategy: ECA introduces conservation and sustainable farming techniques among its farmers to maintain soil quality, which for instance limit deforestation or ploughing next to rivers. No data is available yet on the environmental impact of such practices.

Observed impact of the project on:

- **Land use and sustainable management (including pesticides etc.):** NA
- **Management of water resources:** NA
- **Biodiversity (flora and fauna):** NA
- **Emissions of greenhouse gases and other air pollutants:** NA

Is the project reinforcing the local social capital?

Involvement and empowerment of local organizations and their leadership: ECA lets groups of farmers come together, as a pre-condition to accessing the program. This allows ECA to provide group lending, as well as make the training more cost-effective. It also creates more solidarity among farmers when works needs to be done in the fields, and more compliance when it is time to sell to ECA (vs. other traders). Once the group is identified, ECA helps them with basic organization (registering them with ECA, including election of chair and secretary). There is limited turnover in groups, while some individual members may change from year to year. This also gives more stability in the farmers' base that ECA works with.

Involvement and empowerment of women: ECA currently has 18% female farmers engaged in the project. In 2014 ECA started registering women-only groups in order to create an environment which would provide opportunities to women who would not normally participate. The proportion of women farmers is expected to increase as a result.

Is the project scalable and replicable?

Key challenges and possible solutions to scale further

- **Identifying off-takers or markets for large volumes of maize, which ECA can sell at a better margin:** ECA needs to both grow the volumes it can buy and trade, to be able to enrol more farmers, and also sell these volumes at a higher margin to be able to sustainably re-invest into technical assistance to farmers. Currently, its contract with Cargill allows it to work with ~5000 farmers, out of which only half receive technical assistance. ECA is investing into its own brand of maize meal to be able to grow volumes and margins on a value-add processed product. However, it may realize it takes time to build a brand and a reliable network of distributors, when trying to build a new market locally. Another option would be to explore new crops, but the team has not yet found one that would be appropriate to the project set-up and local cultivation environment.
- **Reviewing package pricing and promotion strategy, to encourage more farmers to invest further into their field:** Today, there are wide variations in the pricing of packages: a rather affordable \$8 for the basic, jumping to \$26 for the medium and doubling further to \$45 for the full package (this increase is explained by the fact that the latter packages include fertilizers, which are very expensive in Mozambique. In contrast, corresponding benefits to farmers are proportionally way less (yields almost double when adopting the 1st package, and then increase by 35% when switching to the 2nd package, and to 50% when switching to the 3rd

one). Combined with the fact that fertilizer use is a very limited and new in Mozambique and farmers need to be actively encouraged to use it, this results in about 74% of farmers understandably stick to the basic package. Yet, having farmers grow and reinvest further is essential for both farmers (who should not remain 'trapped' at 'just' the next best level) and the company (as it could possibly secure a higher supply at lower cost, and factor in some margin when serving better-off farmers). Such a 'we grow with you' strategy would possibly also help ECA expand its extension services to more new/smaller farmers (today, it can only offer technical assistance to about half of the farmers it sources from), as it could cross-subsidize part of these costs by charging the better-off farmers somewhat more. While we have not studied in detail how ECA could do so, the most obvious avenues would be to a) price the packages more gradually and b) find ways to bring more value with the superior packages (perhaps by offering other types of inputs, seeds, assets, or distinctive services), so as to be able to propose more attractive packages while building in a reasonable margin.

External pre-requisites for the project to replicate in a new country

- A strong management team is the key pre-requisite for starting a green-field venture in another geography
- Securing a formalized market linkage through a guaranteed off-taker is also essential to invest into developing a base of supplying farmers keen to re-enrol year after year

Sources:

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Contact person: Grant Taylor, CEO of ECA, grant@ecamoz.com

Exchange rate: 1 USD = 37 MZ

Phata Sugarcane Out-growers Cooperative, Southern Malawi

Phata is a fully registered cooperative of 378 subsistence farmers (together with approx. 325ha of dry, rain-fed land) who requested assistance to start to grow sugarcane with dragline irrigation, with the help of Agricane, a farm management company. Initially, Agricane helped the farmers to pool their land and form a cooperative and meet their supply contract through an off-taker agreement. The cooperative has a long-term sales contract with Illovo Malawi, a subsidiary of Associated British Foods.

The farmers together own 100% of the cooperative. The size of the parcel of land each member has contributed to the scheme determines their pro-rata share in the cooperative which determines the size of each farmer's annual dividend. Dividends are paid in cash from profits. There is also a mechanism in place to provide to the farmers with a guaranteed income in the event of a poor year's performance: Agricane pays a fixed 'rental payment' to the farmer members who receive the higher of this or the average annual dividend. The cooperative has also set up a revolving fund from the profits of the commercial seed production cultivated on the 25ha of pooled land. Phata Cooperative has a Board of Directors, an Executive Committee and various sub-committees, all elected amongst the smallholder farmer members. The cooperative employs over 150 people from the local communities.

Smallholder farmers had informal land title access from the local chiefs and authorities, which was used to form the cooperative. Each farmer had their land measured and mapped and the local authorities verified that: i) the land belonged to the farmers, ii) farmers were not being coerced to join the cooperative and iii) that the land was not earmarked for other use. This process took around 12 months to complete and was relatively straightforward because the initiative had come from the community. The land is currently in the process of being registered in the name of the cooperative under a legal title deed.

In 2013, with the backing of a €2.4m EU grant and with \$504,000 of loan finance from AgDevCo, the Phata cooperative started successfully growing irrigated sugar and food crops on 325 ha of land with centre-pivot irrigation systems. 25 ha of land situated between the pivot circles were developed for pooled food and seed production for the farmer members under dragline irrigation.

The cooperative has an extendable 5-year performance based management contract with Agricane, whose technical expertise ensures the farm

is well run. While initial set up costs were funded through the EU grant and AgDevCo loan, all ongoing costs are now funded out of revenues. Agricane is paid a fixed annual fee as a percentage of turnover, plus a variable fee dependent on profits. They are thereby well-incentivised. Phata's Board of Directors has the power to execute the rights of the management contract and can terminate Agricane's services at any time (providing due notice is given). Through bringing in external expertise on a commercial basis in order to develop and manage the business, the cooperative has managed to complete two successful seasons, with an average annual dividend to the farmer members of \$750 in 2015. Capacity building is provided around banking, savings, entrepreneurship, technical skills and other areas to help engage the members into the long term running of the cooperative.

Building on a proven model, the cooperative now intends to expand to a new group of farmers and develop an additional 340 ha of irrigated land. An application has been submitted for a new EU grant and AgDevCo is appraising the possibility of co-financing this development. The Phase 2 scheme will again substantially increase the incomes of its new farmer members, who currently farm cotton and sorghum on rain-fed land, while also benefitting existing cooperative members through economies of scale on the enlarged scheme. The Phase 2 scheme will again include an area for irrigated food crop production. The potential for a portion of this land to be allocated for individual smallholder-managed irrigated food plots is currently being explored.

Factors for success / replicability:

- Securing a formalized market linkage through a guaranteed off-taker
- Farmers initiating and seeing the need for the land aggregation, rather than it being externally imposed
- Secured land access title for each of the individual members wanting to join the cooperative
- Cooperative members through their elected representatives actively part of the operating company and its day-to-day activities.
- A well-structured capacity building program for farmer members to allow them to gradually lead key components of the scheme
- Need for competent commercial management and technical partner with knowledge and experience of the sector (i.e. Agricane).

Honey Care Africa

www.honeycareafrika.com



Kenya, Tanzania, South Sudan

Sourcing honey directly from some 6,500 traditional beekeepers and setting up, maintaining and harvesting hives on the farms of 2,700 smallholder farmers

Key insights

Disintermediation can allow the transfer of a significant price premium to farmers while maintaining the profitability of operations, without increasing end-user price. In a market with 4-5 layers of middlemen between honey producers and buyers, Honey Care Africa (HCA) has invested into reaching groups of traditional beekeepers directly or through a single intermediary, offering farmers higher prices (25% average premium), more regularity in their income, as well as advice on how to improve the quality of their produce. HCA manages to turn an operational profit on the sale of the corresponding honey products. Although the company has not yet reached overall breakeven, it has become one of the largest honey buyers in East Africa.

Providing non-beekeeping farmers with hives can have strong benefits on their livelihoods, but this is hard to transform into a sustainable business. HCA also offers farmers to sell on credit, set up, maintain and harvest hives on their farms, and buy back the honey. Sales of honey can increase the yearly income of farmers by up to 10%, with little additional work for them. However insufficient productivity per hive has so far prevented HCA from covering the costs of maintenance and harvest.

As a buyer of agricultural produce, providing financing to farmers for agricultural assets is better done in-house. HCA attempted to partner with a micro-finance institution (MFI) to provide farmers with financing to buy its hives. This fell through as MFI agents were incentivised to sell as many hives as possible, regardless of their potential productivity. This resulted in low harvests and a high (80%) default rate for farmers. HCA now successfully organises financing with its own teams: salesmen find interested farmers but specialised technicians assess the potentiality of the site before hives are installed. Instalments to repay the loan are recouped from payments for honey, which limits the risk for the farmer (0.5% default rate so far, although loans have not yet reached maturity).

In a context of low supplier density, a reliable IT system is necessary to identify best agricultural practices to maximize productivity, and streamline operations. To enable its field staff to efficiently maintain and harvest a great number of hives over large areas, HCA has developed a modular, cloud-based and user-friendly mobile app through which it is able to collect a vast number of data (including photos) in a record amount of time. Mining these data yields several benefits:

- Growing revenues per hive: analysing data from the most productive hives allows to identify productivity levers and disseminate them, as well as identify non-productive hives and restore or relocate them
- Cutting down on operational costs: automated reporting and GPS tracking of hives allows monitoring and optimal deployment of field staff (as transportation costs represent a significant share of field costs).

Description of the project

History / Key milestones:

In the early 2000s, three Kenyan entrepreneurs bought out HCA, a business producing high quality beehives. Their idea was to offer a supplementary source of income to farmers by providing training and inputs (beehives and equipment) through farming organizations. They received funding from various multilateral organisations.

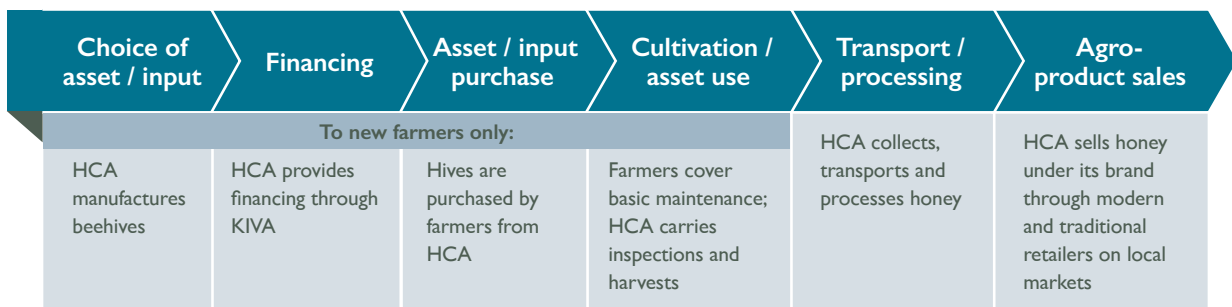
The honey was not sold directly on the international market but through a third-party trader. By 2006, the management had realised that they could extract more value as a brand and integrated downstream into processing and packaging, quickly growing their market share to 60%.

In 2006 the founders left the management team. The company was largely funded by donor money which meant poor sustainability. As its financial situation declined, it had to let most of its staff go.

In 2010, Madison Ayer – the current CEO – joined the company with a resolve to turn it around. Looking at the Kenyan honey market, which was dominated by low quality local brands and expensive imported brands, he realised the opportunity of building the only traceable honey value chain (from farmer to shelf), and connecting it to sustainable brand equity in the domestic consumer market that was increasingly demanding better quality natural products. Providing more modern hives to traditional farmers did not necessarily improve production as traditional hives are better suited to some areas, and adoption of new techniques by farmers was low. As a result, a full-service model was developed to install, maintain and harvest new hives on farms, in addition to sourcing honey directly from traditional beekeepers. An efficient and modern data collection and management system was built. After unsuccessfully partnering with micro-finance institutions, HCA set up hive-financing for farmers through the KIVA online lending platform. HCA now controls the complete value chain of honey and is one of the largest buyer in the region, working with over 9,000 farmers.

Business model:

- **Role of key stakeholders in the value chain:**



- **Value proposition:**

- » **Sourcing from traditional beekeepers** (70% of farmers): HCA sources its honey directly from groups of existing beekeepers. These honey producers typically own from 10 to 100 traditional log hives scattered among communal forest and bushland, which are hard to reach because of distance and other hazards (such as snake bites during the dry season). When in need of cash, these farmers would – often prematurely – harvest some of these hives and sell their production to local brokers with no guarantee to be able to sell their product at a good price, or at all. By cutting most levels of middlemen separating farmers from buyers, HCA is able to offer them upwards of a 20% premium on the average buying price, as well as visibility on income by keeping its commitment to buy their harvest.
- » **Setting-up beehives with new farmers** (30% of farmers): HCA provides a full-service model to farmers who do not keep bees. The company ensures the installation, maintenance and harvesting of high performance “Langstroth” hives, as well as the purchase of the honey produced. Each farmer is sold 3-5

hives depending on the capacity of the local flora to support bee colonies. This allows farmers to increase and diversify their income. Financing for hives is provided through the online lending platform KIVA.

- » **Offering a diversified range of superior honey products to consumers:** In Kenyan retail shops, honey is available either from domestic brands that are affordable but low quality (diluted with water or syrup, smoked,³⁴ fermented etc.), or imported brands offering good quality but at a high price. HCA's main differentiation is to offer local and affordable honey of a consistent quality which is traceable back to smallholders, and which consumers can trust. HCA's Beekeeper's Delight brand (75% of sales) coming in 100g to 1kg jars is priced like domestic brands but with superior and consistent quality.

The Honey Care brand (20% of sales) offers premium honey of different flavours in 450g jars at a price point between domestic and imported brands.

The Asali Poa brand (under 5% of sales) of 5g and 20g individual sachets (sold at \$0.05 and \$0.2) was launched in early 2014 and is targeted to be affordable for low-income households as the healthy version of snacks for children.

- **Operations:**

Sourcing from traditional beekeepers: Come harvesting time (2-3 times a year at different times in different areas), HCA buys honey from groups of farmers, in markets or in villages, providing buckets so they can harvest honey in hygienic conditions. Purchasing teams usually provide basic training on good beekeeping practices. Honey is processed centrally in Nairobi before packaging and distribution.

Setting-up beehives with new farmers:

- » HCA centrally manufactures hives and its technicians install them on the farm
- » Once natural colonisation has occurred after 2-12 weeks, hive technicians carry monthly inspections and perform maintenance when needed. Via their smartphones, technicians detail each inspection in the system. They provide farmers with a basic understanding of how beehives works and how they should be maintained.
- » When the hive is ready for harvesting, the technician extracts the combs and weighs them with the farmer. Combs are then taken to a local extraction facility, and once emptied are returned to the farmer and weighed again. The farmer is then paid according to the difference in weight via the mobile money platform m-Pesa. Transactions are again recorded in the IT system.
- » Supervisors oversee the transfer of the extracted honey towards the central processing plant where it is checked for quality, sent to Nairobi for processing and packaged for distribution in traditional retail networks on the local market.

- **Revenue model:**

- » Both traditional beekeepers and new farmers are paid upon harvest. If the farmer has taken a loan for hives, 75% of the money is used as repayment until the loan is fully repaid (typically over 4 years).
- » HCA generates revenues from selling branded consumer honey products through various modern and traditional trade channels (90-95% of revenues) and from selling hives to farmers and NGO programmes (10-5% of revenues).

34 Honey can be spoilt by the smoke used to neutralise bees when harvesting

Farmer demand creation and user adoption strategies:

- **Customer acquisition:**

- » **Sourcing from traditional beekeepers:** Due to the lack of beekeeping organisations in Kenya, HCA purchasing teams contact existing honey aggregators (handling around \$200's worth of honey per day) or brokers (handling around \$2,000 per day). These aggregators and brokers get a sourcing commission per kilogramme of honey they bring to HCA: for them this represents a less risky source of income than buying the honey and reselling it.

In Tanzania, associations of beekeepers are well organised and HCA is able to buy its honey directly from them. In South Sudan, HCA is organising beekeepers into groups of 8-20 farmers with which they are able to negotiate prices and buy bulk orders. These groups only exist for dealing honey.

- » **Setting-up beehives with new farmers:** HCA salesmen attend events in villages and give a short presentation of HCA and the benefits of beekeeping. Interested farmers leave their contact details. The more well-to-do farmers are typically the keenest on experimenting with beekeeping since they are also less risk-averse. Another important driver for adoption is prior experience in beekeeping. Cluster managers then visit the farms to see for themselves if they would be suitable for honey production: this prevents salesmen from installing hives in unproductive areas. If the inspection is conclusive, salesmen collect information for the KIVA loan application, which is usually funded in less than 2 months: then the hives are installed.

- **Customer retention:**

- » **Sourcing from traditional beekeepers:** Although HCA has so far not been tracking its suppliers to measure their loyalty, it typically offers prices 20% over and above the local market prices which allows it to capture most of the production and motivates beekeepers to remain in business with the company. In South Sudan, HCA is oftentimes the only reliable access to market for beekeepers.
- » **Setting-up beehives with new farmers:** Monthly inspections by hive technicians allow communicating with and advising farmers on potential issues (e.g. fear of bee stings), and usually ensures their satisfaction even when productivity is low.

Regulatory and ecosystem issues:

- **Regulation of honey production:** In Kenya, regulation focuses on the quality standards for the end-product, but is flexible on the sourcing of honey which has allowed HCA to experiment and innovate. In South Sudan, HCA has actually been able to help shape some regulation for this young State (including an approval process for their Bureau of Standards).
- **Demand:** All of HCA's honey is sold in Kenya (mainly in cities), where demand for honey is largely unanswered despite an increasing number of brands on the market. This growth (double-digits in Nairobi) is driving sales of HCA products but means supply must be increased to avoid stock-outs.

Is the project impactful?

Improvement of productivity and incomes:

- **Sourcing from traditional beekeepers:** HCA buys honey at a 20% average premium on the price offered by traditional local traders, leading to a \$4 premium on an average \$16 sale per farmer in 2014
- **Setting-up beehives with new farmers:** 4 kg honey/hive/harvest * \$1.85/kg honey (HCA price in February 2015)
* 4 hives/farmer * 2 harvests/year = \$60 per year;³⁵ or 6-10% of their overall income, if all hives are productive.

Other additional benefit:

- Improved honeybee pollination increases yields of some neighbouring crops (e.g. beans) by 15-30%
- Surveys have shown that revenues to new farmers from honey production are reinvested into food and medicine (33%), seeds and fertilizers (25%), school fees (18%), improved housing (10%) and launching microenterprises (5%)
- As hives are not harvested at the same time as crops, this additional income is available at times when households are generally cash-poor.

Scale and reach

- **Total number of farmers reached:** 9,200
 - » Sourcing from traditional beekeepers: 6,500 farmers
 - » Setting-up beehives with new farmers: 2,700 farmers (with 10,500 hives)
- **Growth rate:**
 - » **Sourcing from traditional beekeepers:** 100% growth over the year 2014, expected to grow by 20-30% in 2015
 - » **Setting-up beehives with new farmers:** The first 1,700 farmers were inherited from HCA's previous business model. In the last 4 years, HCA has equipped an additional 1,000 farmers with hives, thanks to financing via KIVA. It is now pausing its growth to focus on improving the productivity per hive.
- **Ability to reach the poorest:** Although the first adopters in beekeeping are generally wealthier and more risk-taking farmers, HCA has been able to reach the poorest farmers either by providing them with KIVA loans or getting donors to fund their hives, providing a significant (10%) additional income for poor households, at virtually no cost (since the debt is repaid on the harvesting of honey). 75% of Honey Care's Kiva farmers live on less than \$2.50 per day; 25% of Kiva farmers live on less than \$1.25 per day.
- **Farmers' satisfaction and loyalty:** no data available yet

Acceptance and usage: Beekeeping is widely spread in some but not all regions of Kenya, Tanzania and South Sudan. Over the years, HCA has found it much easier to work in areas where there already is a culture of beekeeping, as fear of being stung is a major barrier to adoption.

³⁵ 4 kg of honey per hive per harvest is the average productivity expected from a hive after it has been colonized for over one year: this does not reflect the current average productivity of HCA hives, many of which have been installed recently and are not yet fully colonized (in 2014: 10,500 hives producing 11.25 tons of honey = 1.1 kg per hive)

Is the project (economically) sustainable?

For smallholder farmers:

- **Initial cost:**
 - » **Sourcing from traditional beekeepers:** none, farmers already have hives
 - » **Setting-up beehives with new farmers:** \$50/HCA hive * 4 hives per farmer on average = \$200 initial investment, plus freeing up a small (10-20 m²) plot of land where hives are set up.
- **Recurring cost:** If the hives are financed through KIVA a 4% flat annual rate is charged. 75% of each harvest are deducted to cover capital and interest repayments. On average loans are fully repaid after 4 years.
- **Additional in-kind support received at farmer level:** Training in basics of beekeeping
- **Cost of best alternatives:**
 - » **Sourcing from traditional beekeepers:** Selling to local traders means cash in hand but low prices to farmers and reduced visibility on and consistency of income
 - » **Setting-up beehives with new farmers:** additional source of income (no alternative)
- **Affordability:** KIVA loans make hives affordable to poor households who could not pay cash
- **Additional income generated by solution:** \$60 per year from honey production (when the colony is stable after 2 years), minus \$45 if loan pending
- **Net additional income generated by the project in 2014:**
 - » **Sourcing from traditional beekeepers:** \$2/kg honey * 70 tons of honey purchased * 20% (HCA average premium) = \$28,000
 - » **Setting-up beehives with new farmers:** \$1.85/kg * 11.25 tons of honey purchased³⁶ – 37% of farmers paying 75% of harvest for KIVA loans repayment = \$15,000

For the central organization:

- **Revenues, EBITDA, equity, debt:** undisclosed
- **Planned breakeven date:**
 - » **Sourcing from traditional beekeepers:** HCA hopes to achieve breakeven for this activity in 2016
 - » **Setting-up beehives with new farmers:** Due to the high cost of field operations, HCA does not expect this channel to become profitable unless per hive productivity increases considerably. It is currently looking at ways to subsidise this activity as a more traditional development programme (including creating a non-profit arm of HCA).
- **Financing**
 - » Investors: Root Capital, Lundin Foundation, Grameen Foundation, Alphamundi. Most investments are convertible debt (loans that can be converted into equity, in exchange for favourable terms such as a lower interest rate)
 - » Partners: KIVA, Open Capital Advisors, TaroWorks
 - » Donors: USAID, Swiss Re Foundation, Greater Impact Foundation, Africa Enterprise Challenge Fund
- **Positive externalities:** Beekeeping pollinates the crops of neighbouring farmers and can increase the yields of some crops.

³⁶ Current productivity of HCA hives, many of which have been installed recently and are not yet fully colonized

Is the project environmentally sound?

Environmental sustainability strategy: NA

Observed impact of the project on:

- **Land use and sustainable management (including pesticides etc.):**
 - » Pesticide use is discouraged as it can have negative impacts on beekeeping
 - » HCA is in the process of launching a program to promote agro-forestry and the conservation of forests ("Bees for Trees")
- **Management of water resources:** NA
- **Biodiversity:**
 - » Increased pollination benefits the local ecosystem
 - » By exclusively promoting natural colonisation, HCA strengthens local bee species
- **Emissions of greenhouse gases and other air pollutants:** NA

Is the project reinforcing the local social capital?

Involvement and empowerment of local organizations and their leadership: In South Sudan, HCA is encouraging traditional beekeepers to organise themselves into groups of producers to sell in bulk and reduce its transportation costs.

Involvement and empowerment of women: Women represent 43% of the beneficiaries of the full-service model. Given that women prove to be more reliable and easier to work with, HCA now only processes applications from female farmers for the full-service model.

Is the project scalable and replicable?

What are key challenges/bottlenecks today to scale further and possible solutions?

- **Increasing supply to consistently meet demand:** HCA's supplied volumes vary significantly, due to:
 - » Weather conditions: honey production relies on the local availability of flowers, which itself depends on rains. HCA is tackling this risk by geographically diversifying its operations (6 different clusters in Kenya, also sourcing from Tanzania and South Sudan)
 - » Other factors affecting productivity per hive: proximity to a water source, neighbouring crops, presence of pests etc. These cause productivity to range from 0 to 25 kg of honey per harvest per hive. In its activities of sourcing from traditional beekeepers, HCA has plans to improve the productivity of farmers by formalising and scaling up training to farmers on good beekeeping practices, as well as encouraging the development of local value chains for the manufacture of top-bar hives which yield more honey than simple log hives. For new farmers that have been equipped with beehives, analysing data from HCA's IT system should allow identifying best practices to improve productivity, and disseminating them.
- **Reaching low-income honey consumers to increase social impact:** Honey is still considered as a premium product in much of the region. Awareness of its health benefits is also low. HCA's new product line of 5g and 20g individual sachets is targeted to provide affordable and healthy snacks to low-income households.

External pre-requisites for the project to replicate in a new country

- Warm and dry environment with flowers and trees, and no synthetic pesticides
- Existing culture of beekeeping, as fear of beestings prevents farmers from adopting hives as a new source of income.

Sources

Visit to HCA Nairobi headquarters and Kitale (Kenya) on 2nd and 26th of February 2015, including interviews with Andrew Loebus and Alex Berzborodov, HCA managers; Boniface Chimwani, HCA cluster supervisor; Daniel Otiato and Jacob Maiyoo, HCA hive technicians.

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Ivey School of Business Report by Valente and Branzei 2007

www.honeycareafrika.com

Contact person: Andrew Loebus, HCA Manager; andrew.loebus@honeycareafrika.com

Exchange rate: 1 USD = 92 KSH

JAIN Irrigation Systems Ltd.

www.jains.com

India



Providing over 200,000 farmers with holistic farming solutions, including agriculture, water, micro-irrigation systems, pipes, tissue culture, renewable energy based products and appliances, food processing and other agro technologies and technical advice for sustainable agriculture and food chain development

Key insights

JAIN Irrigation Systems Ltd. (JAIN) provides comprehensive solutions to smallholder farmers, bringing them additional revenues while generating more revenues to pay for quality extension services: JAIN does not simply sell products to farmers, it sells comprehensive solutions: prior to any sale of asset or input, in-house field experts assess farmers' soil and climate conditions to guide their purchase, then provide them with continuous support and training. JAIN also provides financing solutions through partner banks and an in-house financial institution. Finally, JAIN has developed a contract farming model offering a minimum price guarantee to farmers, so that it opens markets for the additional crops they produce. This approach creates more value for farmers, while JAIN reduces operations costs by bundling offerings (inputs, equipment, financing, sourcing), and generates multiple revenue streams from the same farmers. This in turn allows to pay for quality in-house support: JAIN has over in-field in-house 500 agronomists and over 500 irrigation engineers in the field to answer any queries from its 200,000 yearly clients, as well as from the 4m farmers it served since 1988. JAIN advocates following self-sustaining agricultural cycle to increase farm production and productivity, increase farmers income, reduce cost of cultivation, protect and enhance environment and biodiversity and develop sustainable natural resources to create sustainable agricultural and food chain for sustainable livelihood.

Investing in selected farmers as 'role models' to encourage adoption of new solutions allows lowering operational costs:

- JAIN has developed its marketing strategy on the basis that 'farmers only believe what they see'. Hence it invests in identifying high potential farmers and turning them into satisfied early adopters, e.g., through free trials or visit trips to its demonstration farms, followed by strong support and monitoring
- JAIN then leverages these 'role model' farmers to lower its operating costs, in two ways:
 - » By triggering word-of-mouth, as they become active promoters of JAIN. They also often play an informal advisory role for fellow farmers
 - » By transforming some of them into official field contact points between neighbouring farmers and JAIN staff, or into new agro-dealers selling JAIN and other non-competing agro-products.

JAIN constantly innovates based on farmers' feedback, and leverages government contracts to recover some of the corresponding costs: In order to keep improving and expanding its offering, JAIN gets direct feedback from the farmers, during trainings, via its dealers, and field staff. JAIN is an innovation-based company spending over 5% of its total revenue in R&D including: improvement of existing product range for the short term; and for the medium- and long-term, new practices and products that help cope with macro changes such as labour shortage or climate change. Lastly, JAIN leverages government-funded or grant-based programs to pilot its new solutions in real conditions; for example it is implementing an automated-irrigation program for 7,000 farmers in Karnataka with government support.

JAIN reaches 100% compliance in contract farming by offering incentives, which it can sustainably pay for thanks to additional value generated in the value chain

- JAIN experiences no side-selling. This 100% compliance rate is made possible by:
 - » Guaranteeing better prices: JAIN purchases farmers' production either at a pre-agreed sales price or at current market price, whichever is the highest at time of purchase. By selling to JAIN, farmers also avoid the 10-15% fees they otherwise have to pay at the local markets
 - » Providing specialized support weekly. Side-selling means losing this support, which farmers value
 - » Arranging transportation for farmers, when they need it. The corresponding cost is then deducted from farmers' payment.
- On JAIN's side, this contract-farming model is sustainable thanks to:
 - » Use of special seeds, e.g. to produce dehydrated onions, JAIN uses a variety developed in house, with higher solid contents (but same price per kilogram on the market), offering higher returns once dehydrated
 - » Sales of micro-irrigation systems, seeds and other JAIN products to its contract farmers, generating additional revenues and value
 - » Cutting the middlemen and saving up to 10% of market price

Description of the project

History / Key milestones:

JAIN was started in 1963 as a small business selling agricultural inputs and petroleum products. Its founder and current chairman Padamshree (Dr) Bhavarlal JAIN has rapidly grown the company into a large wholesaler of equipment for agriculture.

In 1988, JAIN started to work more specifically with smallholder farmers, selling them a range of micro-irrigation systems. Since then JAIN progressively developed integrated approaches for farmers –offering them bundles of assets, inputs, capacity building, financial support, and sourcing directly from them.

Today, JAIN counts 9,000 employees, sells products across 140 countries and manufactures in 15 countries, and is a world leader in many sectors, e.g. irrigation systems (2nd producer globally); pureed mangoes (1st producer globally); or dehydrated onions (3rd producer globally). It received 232 awards received from various international institutions and governments for its work.

- **Business model:**
- Role of key stakeholders in the value chain

Choice of asset / input	Financing	Asset / input purchase	Cultivation / asset use	Transport / processing	Agro-product sales
JAIN experts recommend assets / inputs based on local conditions	JAIN subsidiary offers loans for JAIN and non-JAIN products Partner banks also offer loans for JAIN inputs. Government gives 50% subsidy on irrigation systems for <5 hectares	Farmers order assets and inputs from agro-dealers, JAIN field experts, NGOs or farmers' organizations	JAIN field experts provide regular training support through planned and on-call visits JAIN also trains over 60,000 farmers at headquarters yearly	JAIN buys outputs from ~5-10% of the farmers it sells irrigation systems to: <ul style="list-style-type: none"> • at guaranteed price under contract farming, or • at market price 	JAIN organizes paying transport for farmers. JAIN processes outputs (purees, frozen fruits...)

- **Value proposition:** JAIN has developed comprehensive agro-solutions starting from either side of the value chain: selling assets that improve farmers' productivity (mainly micro irrigation systems, which represent 46% of its business today, but also solar energy products and machinery) or high productivity inputs (saplings from tissue culture and manure, representing around 1% of JAIN business); or purchasing fruits and vegetables from farmers for food processing and export (which represent 15 to 20% of JAIN business). In all cases, JAIN's offer comes with extensive training to make sure farmers make the most of their relationship with JAIN.
 - » JAIN's main product, chosen by around 200,000 smallholder farmers per year, is "more crop per drop", i.e., improved irrigation systems (from drip irrigation systems to sprinklers) adapted to each farmer's specific needs, allowing for significant productivity gains as compared to traditional flood irrigation practices. Clients purchase not just an asset but the continuous support of JAIN's field experts, before the purchase to assess their needs, and after the purchase in case of any issue (choice of crops, fertilizers, best rotation etc.).
 - » For a typical Indian smallholder farmer with 2 acres of land, an irrigation system would cost ~ \$1,300 and last ~ 8 to 10 years. The Government of India provides 50% subsidies for up to 5 hectares, disbursed (sometimes years) after purchase. JAIN has convinced several Indian banks to provide farmers with loans for such products, generally at ~12% decreasing balance rate over 3-5 years, for up to 80% of MIS costs. Since 2011, JAIN has also launched an in-house subsidiary called SAFL to provide loans for irrigation systems MIS at 9-13% decreasing balance rate, and other non-JAIN agricultural assets at 17% decreasing balance rate, plus 1% processing fee at loan disbursement. Repayment to SAFL matches the production cycle of the asset or inputs purchased. SAFL has provided over \$28m loans to 15,000 farmers so far, and plans for a threefold expansion by 2016.
 - » JAIN also offers improved seeds and saplings to farmers. For onions, JAIN has set up a contract farming scheme in which it supplies improved seeds to 4-5,000 farmers per year (around 5-6,000 acres), and buys back the production (60,000 tons per year, or 50% of its supply for dehydrated onions – to be scaled up to 100% in the next 4 years) at the highest of a minimum price agreed on the date of contract and the market price on the day of purchase, deducting cost of seeds and transportation. For bananas, JAIN sells 60 million tissue culture saplings to 16,000 farmers per year at \$0.27 per sapling (including transport) equivalent to

\$340 per acre. Farmers are required to order their batch 6 months in advance and pre-pay 30% of the price. JAIN buys back the production of 3-5% of them (to be scaled up as JAIN increases its processed banana production and enters the fresh banana market). In both cases, farmers are strongly advised to purchase an irrigation system to reap all the benefits from their improved crops (the system in effect pays back for itself in one harvest with those crops); and in both cases they benefit from close support from JAIN field staff. So far JAIN has contract farming agreements with 5-10% of its micro-irrigation systems clients, but this number should go up in the coming years. Demand outstrips JAIN's input supply capabilities for both onions and bananas.

- » Since 2009, JAIN has also helped 7,000 farmers (including all farmers in contract farming) reach JAIN Good Agricultural Practices (GAP) standards, adapted to smallholder farmers from global GAP.³⁷

- **Operations**

- » JAIN identifies potential irrigation clients through 4 channels: a network of 3,000 dealers spread across India (over 50% clients); NGOs or government-funded programs (accounting for 30-40% of JAIN sales); JAIN field experts; and farmers' organizations
- » JAIN agronomists and irrigation engineers help farmers select their system, depending on soil and climatic conditions. They also recommend other products sold by JAIN, e.g., seeds or manure, and by other companies, such as other crops, fertilizer or equipment. Each expert covers ~5-600 farmers with the support of a regional manager (overseeing 25-30 experts). In the contract farming models, local village experts oversee less than 100 acres each and provide even closer support, monitoring farmers' field weekly
- » After sales, JAIN offers continuous support to farmers through training, field visits and calls. JAIN trains 60,000 farmers per year at its headquarters. JAIN also provides continuous training to all its agronomists, irrigation engineers and dealers
- » JAIN produces improved seeds at its headquarters, where it has state-of-the-art laboratories, pilot plots and greenhouses for various crops, the largest banana hardening facility in the world, and irrigation systems and pipe factories. JAIN has its onion and fruit processing facilities on another site, where it has built a 1.7MW biogas plant to recycle all of its processed fruit waste. The plant powers the refrigeration of the fruit and onion factories, and produces slurry, which JAIN transforms in organic manure, re-sold to farmers
- » For its contract farming models, JAIN selects its farmers by assessing farmers' potential, and ensuring that the total land cultivated in a given area is high enough for cost-effective tailored advice and transport, and low enough to avoid labour shortage at the harvest period.

- **Revenue model:**

- » Irrigation systems: JAIN first generates direct revenue from irrigation systems' sales, representing close to 50% of its total revenues. JAIN generates further revenues from some farmers through the sales of complementary inputs such as planting material, and solar products. Another major source of revenue is from piping systems used in agriculture and related fields.
- » Processed agro-products, sourced from smallholder farmers: JAIN provides farmers with plants that have a higher productivity than traditional seeds. For example, JAIN's onions for contract farming have higher solid contents than traditional ones, providing 15-20% higher returns in the dehydration process. This allows JAIN

³⁷ JAIN GAP is an in-house certification, inspired by the GLOBAL GAP standards, which JAIN has developed as per key accounts requirements (including Unilever, The Coca Cola Company, McDonald, Danone etc). It evaluates traceability, food safety, quality, worker's welfare, hygiene, sanitation, environment, biodiversity protection and natural resource conservation and enhancement.

to pay farmers a better price than the market while getting its own share of the additional value (in addition, contract farming allows both JAIN and farmers to avoid middlemen, and share the corresponding additional value freed up between both sides). JAIN then sells its processed food products directly for retail under the brand Farm Fresh for a small proportion, and to other food processors for most of it.

» Others: JAIN has a pipe and PVC business selling to large industrials.

Farmer demand creation and user adoption strategies:

- **Customer acquisition:** In order to convince early adopters, JAIN leverages:
 - » Demonstrations: JAIN has transformed its 2,000-acre headquarters into a large demonstration farm
 - » Free trials: A few farmers identified as high potential can be provided with free trials of irrigation systems or inputs such as seeds or plants

JAIN then relies on satisfied early adopters and positive word-of-mouth as its primary marketing strategy, achieved thanks to very high level of technical support to farmers.
- **Customer retention:** JAIN has high retention rates, thanks to:
 - » High-value trusted services: the omnipresence of training and support via qualified JAIN experts ensures that customers get the most benefit from their purchase
 - » Constant feedback from farmers gathered by JAIN dealers and experts, or at training, and high R&D budget allowing to innovate constantly to meet farmers' demand.

Regulatory and ecosystem issues: Government subsidies for irrigation systems helped JAIN sales take off, reducing the cost by 50 to 90% for poor farmers (initially, JAIN received the subsidies directly but this had to be discontinued as delays in government payments endangered JAIN cash flows). On the other hand, free provision of water and electricity for farmers makes the economic case for irrigation systems less attractive for farmers.

Is the project impactful?

Improvement of productivity and incomes:

- Compared with traditional flood irrigation practices, micro-irrigation increases yields by 50% to 200%. When associated with new crop varieties and agricultural practices (e.g. change in the density of plants per acre), increase can be fivefold for banana yield in 12 months (instead of 18), and near two fold for onion yields in 4 months (instead of 6)
- Micro-irrigation also reduces the need for fertilizer by 30 to 40%. Other JAIN agro practices and equipment limit labour needs, translating into additional savings for farmers
- The annual increase in revenue for a farmer holding 2 acres of land ranges between \$500-4,000, and savings between \$100-300. The investment in MIS (~\$1000) is thus usually recovered within one year.

Other benefits: Farmers report that they are no longer insecure about their future, and can send their children to school and college. Some report that their children had migrated to the city but decided to come back to work on the farm as they saw this was a good livelihood opportunity.

Scale and reach

- **Total number of farmers reached:** 4m farmers since inception, around 200,000 yearly
- **Rate of penetration in target communities:** JAIN reaches over 80% of farmers in some communities

- **Growth rate:** +16% revenue growth between 2013 and 2014
- **Ability to reach the poorest:** 60% of JAIN customers are BoP customers (estimates)
- **Farmer satisfaction and loyalty:** As most of JAIN sales are made through dealers, JAIN does not know exactly how many users are repeat clients. In contract farming, 15-20% new farmers join JAIN every year, both as the program grows and due to the necessary churn for crop rotation.

Acceptance and usage: NA

Is the project (economically) sustainable?

For smallholder farmers

NB: Below are typical numbers for a smallholder farmer holding 2 acres of land, which may vary $\pm 50\%$ depending on soil and weather conditions

- **Initial cost:** \$1,000 for a micro-irrigation system lasting 8 to 10 years
- **Recurring cost:** \$1,000-1,500 per year for inputs (seeds or saplings, fertilizer, manure), labour (land preparation, weeding, harvesting), and transport
- **Additional in-kind support received at farmer level if any:** Training and exposure visits, agronomic guidance of Good agricultural Practices, Packaging material (jute bags)
- **Cost of best alternative(s) and savings made thanks to project:** Savings in electricity and water cannot be monetized in India, as they are free for farmers in India. However, micro-irrigation and new practices reduce the use of fertilizer by 30-40% and save 10-20% labour costs (up to 50% for some crops), typically enabling \$100-300 savings per year
- **Affordability:** A micro-irrigation system costs 25-40% of farmer net yearly income, hence the need for credit
- **Additional income generated by solution:** The annual increase in net revenues as compared to flood irrigation and former practices is \$500-4,000 depending on crops.
- **Additional net income generated by solution:** ~\$400 million (~\$2,000*200,000 farmers)
- **Breakeven for farmer:** An irrigation system typically pays back within one year depending on harvest life cycle.

Farmers' P&L for onion contract farming

Farmers entering into contract farming are required to purchase JAIN seeds and use micro-irrigation. The investment required for 1.5 acre is in the range of \$250 for seeds, fertilizer and pesticides, plus \$250 in labour costs (for land preparation, weeding and harvesting), plus \$750 for an MIS lasting 8 to 10 years.

Farmers are guaranteed a minimum sales price, as JAIN purchases harvested onions at either at a pre-agreed sales price or at current market price, whichever is the highest at time of purchase. Farmers hence typically generate \$2,600 revenues within 4 months, or \$1350 of net revenues even if taking into account the full cost of the micro-irrigation system.

Farmers' P&L for banana farming

Farmers willing to grow bananas need to order saplings from JAIN 6 months in advance. Saplings are sold at \$0.27 per unit (including transport), which represent approximately \$500 for 1.5 acres. They also invest \$2,000 in fertilizer and pesticides, \$750 in an irrigation system lasting 5 years, and spend another \$150 in labour for harvesting.

Improved practices would enable farmers to harvest 50 tons of bananas on 1.5 acres, and generate \$9,000 revenue after 12 months, or net revenues of \$5,600 within the year.

For the central organization:

- **Revenues:** In 2014, JAIN generated total revenues of \$940m, including \$430m from micro-irrigation, \$87m from processed foods (onions, vegetables and fruits), and \$16m from banana saplings
- **Operations profits (EBITDA):** Total EBITDA of \$140m in 2014. JAIN gross margin is in the range of 30-40% on MIS sales, covering field staff and overhead expenses, and leaving a 10% net margin on these products.
- **Breakeven date:** Total profit of \$32m in 2014. As a new business unit, SAFL has not broken even yet as they are still in expansion.
- **Repayment rates:** SAFL experienced no default but had to reschedule ~5% loans for farmers unable to repay their instalments because of various shocks (illness, climate, etc.)
- **Financing:** JAIN received long-term debt financing (3-10 years) from various banks (including State Bank of India, Central Bank of India, South Indian Bank) and financial institutions (including IFC, PROPARCO, FMO). It is now looking for low-interest debt in local currency to avoid exchange rate risk: in the past it benefitted from <5% rate debt in foreign currency, which turned out to cost >10% of interest rate in local currency, due to fluctuations in exchange rate.

Positive externalities: NA

Is the project environmentally sound?

Environmental sustainability strategy: JAIN has a direct impact through the sales of irrigation systems products and solar products. It also encourages farmers to adopt sustainable agricultural practices through its simplified certification standards JAINGAP.

Observed impact of the project on:

- **Land use and sustainable management:** 7,000 farmers certified under JAIN GAP
- **Management of water resources:** Micro-irrigation reduces the use of water by 50% to 80% as compared to flood irrigation. JAIN evaluates water saved thanks to its products since 1988 at 25 billion m³
- **Biodiversity:** JAIN has taken measures to protect, conserve and enhance biodiversity on their own premises. JAIN has developed a Biodiversity Conservation Action Program in 2010. They found 150 flora and 141 fauna species in the small watershed which they have developed since 1988. JAIN planted about 116,221 trees in 650 acres in their premises and every year 25,000 trees are being planted. JAIN also encourages farmer to get involved in social agro forestry programs in their respective villages. JAINGAP also includes biodiversity criteria
- **Emissions of greenhouse gases and other air pollutants:** Water savings can also be expressed in emission reduction, which JAIN evaluates as 3.2 Giga ton equivalent CO₂.

Is the project reinforcing the local social capital?

Involvement and empowerment of local organizations and their leadership: JAIN puts forward its early adopters as model farmers in the community.

For its contract farming onions, as JAIN faces high demand, it limits areas that each farmer can get under contract farming to ensure that all farmers who want to benefit from it get a share of the season's contracts. This has avoided creating conflicts among farmers.

Involvement and empowerment of women: JAIN has always encouraged involvement and empowerment of women in society. At the company level, JAIN encourages female associates to take higher jobs and responsibilities. At the farmer level, JAIN does not maintain data on women involvement. One data point is the 'Unnati project' (with Coca-Cola India Pvt Ltd), cultivating mango with Ultra High Density planting technique, which counts 41% women farmers (a high level as there are fewer women farmers than men farmers in India). JAIN also awards progressive women farmers for their individual achievement and contribution to the society.

Is the project scalable and replicable?

Key challenges and possible solutions to scale further

- **Leveraging ICT for CRM:** As most sales are done via dealers, JAIN has little oversight of its final clients. JAIN field reporting is still partly paper-based and could gain efficiency by leveraging ICT, which would also allow monitoring dealers' activity more closely. The company has started designing adapted IT systems.
- **Continuing innovations for 'dry-land farmers':** The proportion of farmers without water access –60% across the country and up to 85% in Maharashtra –hinders the potential market of JAIN. JAIN is already working on solutions both at community level, e.g., water conservation structures on river and in the village catchment, and at individual level, e.g. farm ponds for storing water on field, to make water available to more farmers.
- **Extending partnerships with organizations bringing complementary skills:** JAIN has already developed a few partnerships, including a flagship program with Coca Cola for mango production "Project Unnati", and Public Private Partnership project for Integrated Agricultural Development with state governments. However, there is still a high potential for developing more partnerships in other areas, e.g., with utilities that could bring water to 'dry-land farmers', or with other food companies interested in the traceability that JAIN can bring.

External pre-requisites for the project to replicate in a new country

- **(Low) availability of water:** Micro-irrigation can only be installed where farmers have access to water. A country where water cost is high would translate into a better economic value proposition for farmers.
- **Government support:** 30-50% of JAIN revenue are related to government-funded programs: the government funds directly some of JAIN programs (e.g., providing connected 24/7 automated irrigation to 7,000 farmers in Karnataka), and subsidizes 50% of irrigation systems' costs for farmers up to 5 acres.

Sources

Visit of JAIN headquarters and field operations on Feb 16-19, including interviews with Dr Bhavarlal JAIN Founder and Chairman, Mr Ajit B. JAIN Joint Managing Director, Dr Anil Dhake, JAIN VP Agri R&D, Mr K.B. Patil JAIN VP Tissue Culture and Agri Services, Mr Sachin Patil JAIN Product Development and Technical Services, Mr Kishor Rawale, JAIN Deputy Manager Sustainable Agriculture & Food Division, Mr G.I. Desarda JAIN Manager Contract Farming, Mr Shamkant Gujar SAFL Business Development and farmers

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Exchange rate: 1 USD = 60 INR

Juhudi Kilimo

www.juhudikilimo.com



Kenya

Providing over 20,000 Kenyan farmers with asset-backed loans to access high-quality and productive agricultural assets, coupled with technical support

Key insights

Juhudi Kilimo (JK) group lending structure limits risks and costs of lending to unbanked, small-scale farmers, resulting in a 95-97% on time payment rate over the past 2 years. JK works via self-help groups (SHGs), which mitigates risks in 3 ways:

- SHGs act as a first filter for loan applications: all members must approve a loan (as they act as co-guarantors) before submission to JK
- The whole group must save every week, while they must wait for their turn to take a loan, creating a de facto partial default guarantee. In effect, Juhudi has in the bank savings corresponding to about a third of its loan portfolio at any point in time
- SHGs motivate farmers to repay and help them to do so as weekly meetings become a key moment in farmers' lives where they can share ideas and encouragement, learn about new products, and organize for access to better pricing and markets.

JK limits costs of serving dispersed rural populations by grouping customers and making SHG do part of the work. Serving dispersed rural population is a challenge, amplified in Kenya by the security issue.

JK mitigates this challenge as follows:

- A prospect must bring together a group of 15 farmers (to be increased to 20 in 2015) if they want to work with JK, with an obvious effect on decreasing both acquisition costs per client and then in-person training and follow-up costs
- Each loan officer serves up to 350 clients a 45km radius at most. In the future, loan officers will be encouraged to densify their reach rather than expand geographically to further limit transport time and cost
- Cash collection is done by the SHGs: the SHGs elect a member each month, in charge of going to town to deposit the money on JK's bank account and giving the receipt to JK's office. In the future, this step will be further simplified by mobile banking

JK has greatly increased its efficiency and client satisfaction by streamlining all processes via a single IT platform. MFI Flex "Salesforce" allows loan officers to capture and store real-time data on their tablet.

This allows to process loan applications within 6 days, which has greatly improved client satisfaction and is now a key competitive advantage for JK. This also helps to track and manage both loan officers' performance and client repayment.

Description of the project

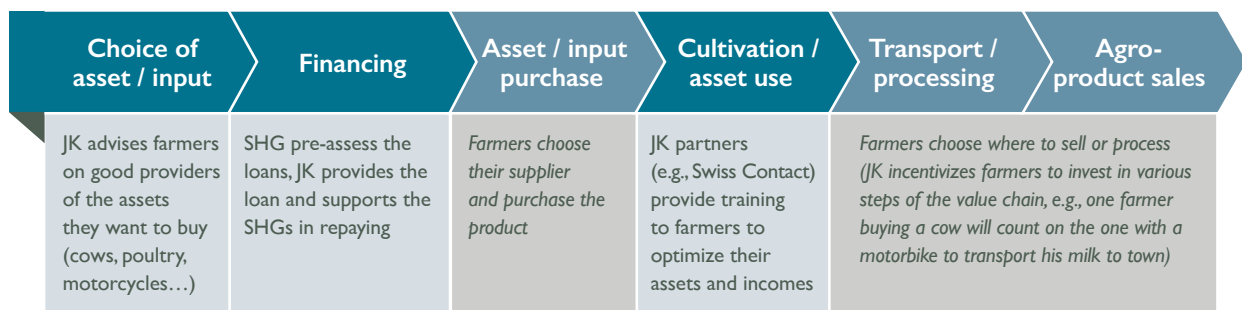
History and key milestones:

Juhudi Kilimo (JK) began in 2004 to provide loans to groups of smallholder farmers and enterprises, as a project of the K-Rep Development Agency, a research and development microfinance NGO. In 2009, JK registered as an independent for-profit social enterprise and grew quickly until February 2012, when the company achieved its first month of break even with over 10,000 loans disbursed since inception. In 2013, after restructuring its capital, JK re-invested in expansion and grew quickly to 20 branches, while building an IT system to allow for this growth,

automatizing loan applications and portfolio management. With new data available, the company realized by mid-2014 that some branches had more bad debt than what paper record showed. For the rest of 2014, after writing off this bad debt, the focus shifted to refining due diligence and repayment processes to avoid such issues. JK is now closing a second investment round and is starting to grow again with a sound operation base.

Business model:

- **Role of value chain stakeholders**



- **Value proposition:** JK finances specific agricultural assets that offer immediate and sustainable income for farmers. JK targets Kenyan smallholder farmers, owning 1 to 5 acres of land and earning as low as \$1/person/day. Farmers must form SHGs of at least 15 members, to avail asset-backed group loans at a 35% declining interest rate, for a maximum duration of 36 months (75% of loans are 12 months). Loans can finance: (1) dairy projects (cows, cow shed and feed, etc., representing 42% of loan portfolio amount as of Jan 2015), (2) poultry or other animal farming (20% of portfolio), (3) horticulture (e.g., green houses) / irrigation (14% of portfolio) and (4) micro business loans (e.g., purchase of land and inputs for farming (10%), purchase of motorbike for agro-transport (9%), working capital to grow a retail business, etc.). Assets can be used as collateral in case of default. Clients can wait for their asset to become productive to start reimbursing the principal on their loan, thanks to grace periods of up to 2 months. In addition, most loyal clients can get a top-up loan for energy devices (solar products and improved cookstoves – 1% of loan portfolio).

In order to avail such loans, clients must meet several requirements:

- » Come as a group: they must be at least 10 people for registration with JK, and 15 people to start availing loans
- » Register: Pay a non-refundable fee of \$5 when they join JK, including the cost of a “passbook” in which they must register all their transactions; and pay weekly meeting fees (\$0.2) to their SHG to cover its administrative costs
- » Save money: clients must save a minimum of 15% of the amount of their loan, deposited on an account with JK, before they are allowed to borrow. Clients must then continue saving at least \$4/month, which builds up their 15% saving base to take a larger loan later on. First loans are capped at \$706, and full repayment allows doubling loan size
- » Attend training: Aspiring groups get basic business/finance training (one hour per week for 6-8 weeks) by their loan officers before they are allowed to borrow. They can also use this time to gather the 15% guarantee deposit. After a loan is approved, they get a day (5 hours) of free training, tailored to their situation (e.g., on cattle practices, or poultry, etc.) by JK partners (e.g., Swiss Contact)
- » Pay an application fee of 1% of the loan when they apply

- » Purchase mandatory insurance (taken from another supplier, UAP): a life insurance covering all loans and funeral costs against client death (costing 1% of loan amount); and for cattle, an insurance covering all loans in case of animal death or disease (costing 4% of loan amount)
- » Wait for their turn: only 40%-60% of the SHG members are allowed to request a loan at the first round, while the rest must keep saving.

JK faced no competition until recently on rural asset loans, but more and more players, including mainstream banks, are entering this market. However, at this stage, JK interest rates are lower than local competitors, its processes faster (loan applications processed in about 6 days, including disbursement), and its range of services to support clients larger than those of banks, so few clients have switched.

- **Operations:**

- » Loan officers are recruited locally among recent college graduates. Each covers a perimeter of 45km, spends 4 days per week visiting existing clients, and one day recruiting new ones. They can currently manage a maximum of 400 active clients and a portfolio of \$164,835 each, beyond which their portfolio is split with colleagues.
- » JK makes extensive use of technology, via 2 platforms. (1) MFI-Flex registers all of clients' key information and transactions. Loan officers can access it on their tablet while in the field, and show it to clients as needed. (2) Clients can communicate directly with Juhudi's HQ via Echo Mobile, a new platform for instant messaging and mass or targeted SMS between clients and JK head office. JK has piloted instalment reminders via this system, with great success in avoiding late payments.
- » In addition, JK has set up "Juhudi Labs" to test new offerings (e.g. individual loans financed by crowd funding platform Kiva). If an innovation proves valuable for the business, it is reintegrated in JK operations. If it proves useful for the sector as a whole, JK will keep funding it via grants.

- **Revenue model:** Over 80% of JK revenues come from interest on loans, while the rest is split between loan application fees, membership fees and passbook fees. In addition, some grants pay for specific costs such as farmers' technical training, and field force technology.

Farmers' demand creation and user adoption strategies:

- **Customer acquisition:** Loan officers use posters with contact details and participate to markets and fairs. Word of mouth is key, as one interested client has to motivate at least 14 others to form an SHG and become eligible for loans.
- **Customer retention:** JK runs regular consumer surveys, made easier by Echo Mobile.

Regulatory and ecosystem issues: In Kenya, MFIs are "unregulated financial institutions" operating under much less stringent rules than banks (or MFI branch of banks), which typically have to maintain a minimum of savings over their loan portfolio. This gives more flexibility to JK to operate as it sees suitable to better serve its clients.

Is the project impactful?

Improvement of productivity and incomes: Farmers get the opportunity to buy assets who pay for themselves, one after the other. Those whose life changes most are those who were only cultivating their small area of land, earning less than \$2/day/ person, who can multiply their yearly income several times by simply purchasing a cow. For existing dairy farmers, improved breeds of dairy cows fed with a zero grazing method can multiply by four the milk they were getting with their previous local dairy cows.

Other additional benefits

- Multiple layers protect the farmer from bad indebtedness: the group guarantees the loans and can step in if a member cannot pay, the asset bought acts as a collateral, and the animals purchased are insured. In addition, JK only provides a larger loan once clients have proved their availability to repay, limiting the risk of default on large sums.
- Farmers who purchase cows typically keep some milk to feed their family, ensuring good protein intake for their children.
- One of the primary use of the extra money earned is to pay children school fees, helping to keep them at school.

Scale and reach

- **Total number of farmers reached:** as of January 2015, 21,200 with an active loan, and over 10,600 more saving with JK. Over 50,000 loans disbursed since inception.
- **Rate of penetration in target communities:** 1%
- **Growth rate:** Between 2010 and 2014, on average 59% per year between 2010 and 2014, both in number of loans disbursed (2,823 to 17,856) and amounts disbursed (\$1m to \$9.2m); 44% per year on average in total active clients (from 7,322 to 31,586); and +52% yoy growth in portfolio (\$1.3 to \$7million).
- **Ability to reach the poorest:** The percentage of low-income clients varies rapidly as farmers get lifted out of poverty. Among first time clients, those who only work their land for staple crop earn ~\$435/acre/year, so even those with 5 acres (\$2175/year) for a family of 5-6 earn less than \$2/day. 30-50% of first time clients fall into that category – the rest already has a side business such as a small shop, a cow, or a motorbike used as a taxi. Those getting a second loan have likely already passed the 2\$/day bar.

Farmers' satisfaction and loyalty: Groups typically break up if one member fully defaults. This happens to about 5% of groups. 1% of the best performing farmers also leave to get access to larger individual loans (JK is now piloting individual loans to avoid this); the SHG then needs to replace them to continue operating. On one of its latest feedback request sent out of 10,000 contacts, JK received in less than 2 days a 20% response rate, 82% of which said they would recommend the company (this rate has varied between 82 and 87% over the past 3 years). The remaining ones included 4% clients who are unhappy with customer service (JK will work on its training to improve this), while the rest mostly wants more products (e.g., individual loans or larger loans from the beginning).

Acceptance and usage: In Kenya, rural people often form informal saving groups and hence this system is easy to set up. Microfinance has been around for a long time and farmers are familiar with the concept.

Is the project (economically) sustainable?

For smallholder farmers

- **Initial cost (\$):** Registration fee of \$5, application fee 1% of loan amount, and insurance costing 1-5% of loan amount. Loan size: 109\$ to \$707 for a first loan, up to \$6,522 (so far) for repeat clients
- **Recurring cost (\$/year):** 35% declining balance interest rate, i.e., \$22 to \$1304 year of interest depending on loan size (instalments from \$11 to \$222/month)
- **Additional in-kind support received at farmer level:** Prior to any subscription of loan, training on basic finance and SHG processes (4 to 8 times one hour). Specific training on assets after subscription of the loan

- **Cost of best alternative(s) (\$):** Conventional income generation loans at 38-42% yearly declining balance interest rate
- **Affordability:** Instalments typically covered by the extra revenue from the asset purchased
- **Additional income generated by solution:** Depending on asset purchased: net profit between \$600/year for 50 egg-laying chicken or a small shop, to up to over \$1 600/year for a motorbike or an improved breed of dairy cow
- **Additional net income generated by solution:** \$1 000 (per loan per year on average)*17,856 loans given in 2014 = \$17.86m
- **Breakeven for farmer:** Depending on asset purchased and loan conditions: between 6 and 18 months for a dairy cow, 12-18 months for chicken, 1-2 months for a motorbike

For the central organization

- **Revenues:** \$1.6m in 2013, \$2.3m in 2014, estimated \$3.2m in 2015
- **EBITDA:** 12% in 2013, -32% in 2014 and planned to be positive again in 2015, at 21%, with net after tax profit of \$144,000 (Note: EBITDA include the grants indicated below, but would be the same without grants as the corresponding expenses would have not been incurred)
- **(Planned) breakeven date:** First monthly breakeven in 2012, then late restructuring of debt led to more interest rate than planned. Full breakeven planned in 2015
- **Repayment rates:** Consistently 95-97% on time payment for the past 2 years
- **Financing:**
 - » Initial investor: K-Rep Group (who incubated the project and exited in 2013)
 - » Convertible debt from initial investors: Grameen Foundation, Acumen Fund and Soros Economic Development Fund (all converted in December 2013): \$2.3m. Adding \$0.9m in equity in 2nd round, with 2 additional investors expected to come on board early 2015.
 - » Debt: Total of \$5.1m in favourable term loans (interest rate: 0% from Kiva since 2009, funding 30% of current portfolio; 6% from Ford Foundation; 11% from Rockefeller; 16.5% from FEFISOL; 16.75% from Alterfin to 16.76% from Grameen Credit Agricole, with 2 to 10 years maturity) started between July 2012 and October 2014. Loan from ResponsAbility, Deutsche Bank, Agora (based in Germany and the UK) already repaid in full.
 - » Grants: \$135,000 in 2012-13 to set up the IT system and purchase tablets, from Acumen, USAID/FIRM and Ford Foundation. \$350,000 in 2014 from MasterCard Foundation for new product development, and AMSCO for staff training. Training provided for free by SwissContact since 2012 (cost of around \$15,000 per year to train 1200 to 2200 farmers, not included in the P&L).

Is the project environmentally sound?

Environmental sustainability strategy: JK provides credit to buy energy efficient products (e.g., solar lamps) via a partnership with the social enterprise Micro Energy Credits

Observed impact of the project on:

- **Land use and sustainable management:** Training by Swiss Contact staff includes sustainable land management and partnership with a new company called F3 Life which combines credit scoring with training on environmental best practices such as soil conservation and water management.

- **Management of water resources:** NA
- **Biodiversity:** NA
- **Emissions of greenhouse gases and other air pollutants:** NA

Is the project reinforcing the local social capital?

Involvement and empowerment of local organizations and their leadership:

- **Getting endorsed by local leaders.** JK maintains good relationship with local leaders and uses their endorsement at local events to pitch its offer.
- **Creating or strengthening local farmers groups.** Most of the groups formed since inception still meet on a regular basis, within JK or not.

Women involvement and empowerment. Almost half of JK's customers are women. Anecdotal evidence shows that women who had taken on loans were more empowered with decision in the household and less likely to suffer from domestic violence.

Is the project scalable and replicable?

Key challenges and possible solutions to scale further

- **Fighting increasing competition.** JK used to have 98% market share in rural asset loans to small scale farmers. This market is becoming increasingly competitive with banks now offering tailored products, and advertising cheap interest rates (not necessarily for comparable loans to JK but giving clients that impression). JK will need to differentiate itself to keep its market share.
- **Keep solid clients active with new products.** JK is piloting individual loans with its best clients, who ask larger loans than what the rest of the group is willing to guarantee. JK has also piloted loans for new types of products such as bio-digesters. In addition, JK is thinking about allowing small top-up loans for good clients (as is already done for solar lanterns and improved cookstoves).
- **Introduce mobile disbursement and payments.** Clients would avoid the security risk of carrying a large sum from and to town. JK would avoid paperwork for payment recording. Finally both JK and clients would avoid possible fraud issues. Working via mobile payments would also motivate each user to register their mobile phone number with JK, allowing for direct interactions between them and JK.
- **Continue to ensure that clients optimize their asset use.** Training is a key component of JK's offer and a key reason explaining the high income increase of its clients. This training has so far been provided for free by JK partners (e.g., Swiss NGO Swiss Contact), with great results, yet JK management is aware that this training is dependent on its partners' financing and implementation. A potential solution for the long term lies in recording the trainings: while farmers do not want to pay for trainings, they have proved willing to purchase DVDs featuring these (JK started selling such DVDs at cost and in 3 months sold 300 copies).

External pre-requisites for the project to replicate in a new country

- **Country pre-requisites:**
 - » Regulations allowing for flexible loan over saving ratio
 - » Well accepted group-based lending or at least informal savings groups
 - » Sufficient density of farmers (to limit operational costs) owning their land (a guarantee that they will not run away with the money)

» 2G and even 3G infrastructure to enable the use of a real time salesforce and CRM internet platform. In the case of Kenya, the high penetration of mobile money (close to 30% of the population, or 70% of adults) will facilitate the shift to mobile loan disbursement and repayment – yet such a penetration is unique in the world.

- **Business model pre-requisites:**

- » Loans must be offered for assets that are good investments locally, with a local market that can absorb the additional production without a price crash (e.g., in Kenya, demand for locally produced milk outstrips supply, making a dairy cow a good financial investment)
- » This model takes time to pay off as it needs to build a brand and trust with customers.

Sources

Visit to headquarters in Nairobi and Eldoret Branch in January and February 2015, including interviews with Nat Robinson, founder and CEO; Shadrack Mutunga, General Manager; Michael Njenga, Chief Accountant; Mujeni Aseli, Chief Marketing Officer; Caroline Chelimo Cheboi, Branch manager; Duncan Phoebe Auma, Simon Rotich, loan officers; and with various self-help groups.

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Contact person: Shadrack Mutunga, General Manager, smutunga@juhudikilimo.com

Exchange rate: 1 USD= 92 KSH

Kenya Tea Development Agency

www.ktdateas.com



Kenya

Organising the collection, processing and exports of 60% of the national production of tea, sourced from over half a million small producers who are also its shareholders, and to whom it provides training and financial services

Key insights

By combining governmental support with commercial incentives and managerial skills, the Kenya Tea Development Agency has become the first tea producer in the region both in terms of quantity and quality:

- The Kenya Tea Development Agency (KTDA) was founded in the 1960s as a Kenya Government para-statal organization, benefitting from government investment in regulation, infrastructure and guarantees for financing that allowed it to expand quickly. The management of its tea factories was first outsourced to teams from commercial estate companies that had the necessary skills to run the factories efficiently. Once these skills had been transferred to local personnel, KTDA reclaimed the management of its factories.
- KTDA's focus on the quality of its product (which fetches an average premium of nearly 20% over other Kenyan teas on the international market) has allowed it to preserve its competitiveness. As tea from each of its 66 factories is auctioned separately, farmers from each factory are incentivised to compete for the highest price by delivering the best quality of tea leaves.
- KTDA spurs the productivity of its managers by rotating them from factory to factory every 3 to 5 years. This also allows them to transfer best practices between factories.

Large scale training of farmers on good agricultural practices can be profitable:

- KTDA has organised the training of its farmers on good agricultural practices through Farmer Field Schools: each class of 30 farmers learns in twice-monthly 2-hour sessions on best practices for growing tea (75% of curriculum) and other enterprises depending on the interest of farmers (25%). KTDA will have trained nearly 100,000 farmers by the end of 2015.
- Research has found that Farmer Field Schools are a more effective and cheaper way to train farmers on good agricultural practices than the alternatives of field days (where farmers are trained for a whole day) and farm visits (where extension officers visit each farm individually). The cost-benefit analysis of the Farmer Field Schools (IDH, 2012) has furthermore shown that the yield improvement they incur outweighs their cost for KTDA tea factories. Although training was so far co-financed by donors, factories will start covering its entire cost from 2016 onwards.

Managing payments to farmers can be an opportunity to provide credit while limiting default risk and transaction costs. KTDA has set up Greenland Fedha, a subsidiary dedicated to financing, which can assess the creditworthiness of a farmer simply by looking at his history of payments for tea deliveries, thereby limiting default risk. It also deducts loan repayments directly from farmers' payslips: this reduction in the cost of transactions allows Greenland Fedha to offer lower rates than most commercial banks. It is also using the M-Pesa mobile payment platform to transfer smaller loans at a lower cost.

Factory ownership, loans, and bonuses can allow to keep side-selling below 10%:

- Farmers are shareholders of the factory they deliver their tea to, and are engaged in its governance. This sense of ownership is a strong factor in preventing farmers from selling their tea on the side to hawkers (illegal middlemen delivering tea to private factories).
- A farmer's ability to access the affordable loans offered by Greenland Fedha is linked to his record of deliveries to the factory and corresponding payments.
- Part of the market price for tea is paid to farmers in a lump sum at the end of the financial year in June: this significant payment incentivizes them to think long-term and not side-sell to hawkers for ready cash.

Description of the project

History / Key milestones:

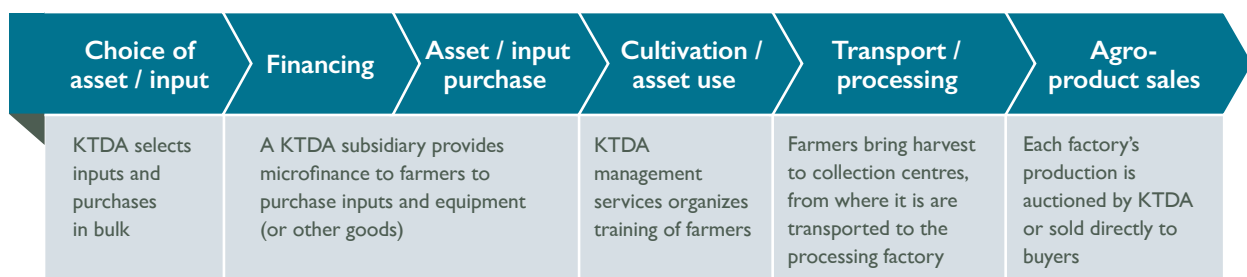
The Kenya Tea Development Authority was established as a state agency to develop the skills of smallholder farmers, build processing factories, market and export tea. Since its early days, the entity has focused on marketing high quality tea requiring careful hand-plucking techniques. By the late 1980s, KTDA's expansion – facilitated by financing from the World Bank and the British Development Finance Institution – had challenged the status of large-scale plantations as the main producers of tea in Kenya.

The KTD Authority was privatized in the year 2000 (and renamed the KTD Agency), and its ownership transferred to the farmers themselves. Each farmer became a shareholder of a tea factory: each tea factory owned part of the KTDA Holdings Company, the umbrella organisation overseeing the subsidiaries that are responsible for running central operations.

After privatization, the areas under tea cultivation increased significantly as KTDA launched a factory modernization program, and created subsidiaries in warehousing, insurance, renewable energy, management services, tea value addition, machinery fabrication, philanthropy and microfinance. In partnership with the Lipton Company (owned by Unilever), KTDA introduced the Farmer Field Schools training programme and Rainforest Alliance certification³⁸ in 2006 to improve the productivity and decrease the environmental impact of its farmers. In 2013, over 550,000 smallholder farmers were registered in KTDA tea factories.

Business model:

- **Role of key stakeholders in the value chain:**



³⁸ The Rainforest Alliance is an international NGO providing training and certification in sustainable agricultural practices that conserve biodiversity and ensure sustainable livelihoods to farmers.

- **Value proposition:**

- » **Income:** Farmers enter into green leaf supply agreements with the KTDA processing factories to which they supply their tea. They receive around 70% of the final product market price, as well as dividends (as they are shareholders in the company). KTDA's superior quality standard allows its tea to fetch up to a 20% premium over other Kenyan teas on international markets.
- » **Financial services:** A KTDA subsidiary (Greenland Fedha) provides farmers with access to micro credit with no other conditions than selling their tea to KTDA (as repayments are deducted from their tea payslip). Since 2009 it has placed agents in all factories and processed over 220,000 loan applications. It charges a 12% flat rate for loans of \$55 on average repaid over 1 year. Another dedicated subsidiary provides health and life insurance to farmers and their families.
- » **Training:** Through Farmer Field Schools and Rainforest Alliance certification, factories and the KTDA Management Services also organise the training of farmers on good agricultural practices for tea and other crops, which improves their productivity and income.
- » **Ownership:** Individual farmers are all shareholders of processing factories and are actively engaged in their governance.

- **Operations:**

- » **Collection:** Farmers within the catchments area of a tea factory deliver the freshly harvested leaves to the nearest buying centre where trucks from the factory are dispatched on a fixed schedule. A team of 5 farmers elected for 3-year mandates manages each buying centre, where tea is graded (any substandard product is rejected) and weighed; a receipt is issued to the farmer.
- » **Processing:** Leaves are transported to the factory for processing, sorting and packaging
- » **Sales:** Tea from each KTDA factory is then sold and exported as a distinct commodity on the Mombasa international tea auction by a dedicated KTDA subsidiary, KTDA Management Services. 25% of KTDA tea is also sold directly to buyers through separate contracts.
- » **Farmer Field Schools:** KTDA factories leverage their Tea Extension Services Assistants to organise Farmer Field Schools, where farmers are trained in groups of 30 in twice-monthly, two-hour sessions over 1 year. 75% of the curriculum is designed by KTDA and focuses on tea (e.g. good agricultural practices, new technologies). Farmers decide what they wish to study for the remaining 25% of the time (e.g. gardening, beekeeping, cattle raising). Extension officers can request the support of expert trainers from the Ministry of Agriculture or other entities. Training takes place in farms so farmers are able to directly experiment with new practices. After completing the programme, farmers become Graduate Farmers and can serve as facilitators for another school, with some assistance from extension officers. This allows to reduce the cost of this intensive programme, as KTDA estimates one Graduate Farmer can teach 5 farmers in turn.
- » **Rainforest Alliance certification:** in partnership with Unilever and IDH (the Dutch Sustainable Trade Initiative), KTDA is certifying all of its factories to the Sustainable Agriculture Network standards, set by a coalition of NGOs for rural development, and certified by the Rainforest Alliance. Its requirements include that all farmers within a factory must be trained. Training happens on a train-the-trainer model, whereby Lead Farmers volunteer to be trained by Rainforest Alliance staff and train the farmers in turn. Lead Farmers are typically successful farmers (most of the time also graduates from Farmer Field Schools) who are willing to pass on their acquired knowledge in sessions at community meetings and collection centres.

Revenue model:

- » Tea buyers pay the KTDA-managed factories directly for proceeds of the tea sales, at the Mombasa auction, or in the terms of contracts with direct buyers.
- » Through a management agreement, KTDA Management Services charges the factories a 2.5% management fee based on net price for services rendered to sustain its operations. This is lower than the market rate of 7 to 12% of gross sales, due to the unique ownership structure.
- » KTDA subsidiaries in power generation, warehousing, insurance, and blending/packing charge for their services separately
- » At the end of each month, factories pay to farmers a fixed price per kg of green leaf, deducting fertilizer instalments as well as instalments on any outstanding loan from Greenland Fedha
- » At the end of the financial year in June, a lump “2nd payment” covers the balance between the actual market price over the past year, and the payments already made (representing around 60% of total yearly earnings).

Governance: Each catchment area of a particular factory is divided into 6 areas. Farmers in each area nominate 1 director (for election during the company annual general meeting) who sits on the factory board for a 3-year mandate. The 66 factories are themselves grouped into 12 administrative zones: directors from each zone elect one board member, who sits at the board of KTDA Holdings.

Farmer demand creation and user adoption strategies:

- **Customer acquisition:** A factory company builds a new plant when the current plant reaches its maximal capacity (i.e. it receives more green leaf than it can process). Farmers contribute 50% of the equity; the rest comes as loans from commercial banks guaranteed by KTDA.
- **Customer retention:**
 - » Continued access to KTDA’s financial services is a strong incentive to make sure farmers sell their tea to their factory and not to other buyers
 - » 2nd payments and dividends paid at the end of the of the financial year in June also create a long-term reward for farmers to deliver all of their production to their KTDA managed factory instead of selling a portion for ready cash to hawkers
 - » Farmers are also heavily involved in the governance of their factory, notably at the Annual General Meeting. This engagement helps create ownership and loyalty. KTDA factories ensure transparency to farmers by issuing weekly reports on tea prices.

Regulatory and ecosystem issues:

- Tea farming in Kenya is regulated by the Tea Act, which stipulates that every farmer should be registered with a factory (KTDA or not) to which it must supply the entirety of its production
- International market price fluctuations: KTDA is exposed to fluctuations in both tea prices and exchange rates (see last section on scalability and replicability of project).

Is the project impactful?

Improvement of productivity and incomes:

- From 2004 to 2014, KTDA tea fetched an average premium of 17% over other Kenyan teas
- From 2006 to 2014, farmers received between 65% and 75% of the price reached by their tea on the international market
- Effects of training: Training helps boost yields by up to 36% and ensures higher quality

Other benefits: FFS training promotes crop diversification which improves farmers' resilience, as well as proper spraying of detergents which has a positive impact on health

Scale and reach

- Total number of farmers reached in 2014:
 - » 550,000 smallholder farmers cultivating 110,000 hectares
 - » Delivering to 3,200 buying centres from 54 factory companies (66 plants in total) producing 258,000 tons of made tea
 - » Since 2009, Greenland Fedha has granted loans to 79,000 farmers
 - » 1771 Farmer Field Schools set up, and over 46,000 farmers trained
 - » All 66 plants have Rainforest Alliance certification.
- **Rate of penetration in target communities:** KTDA accounts for 60% of the Kenyan tea production and manages the vast majority of smallholder tea farmers
- **Growth rate:** KTDA has known accelerated growth since its foundation in 1964, uniting 50,000 farmers in 6 factories in 1970, 200,000 in 39 factories in 1990, 350,000 in 45 factories in 2000 and 550,000 in 66 factories in 2014. Growth is expected to slow as Kenya's tea growing regions reach their maximum acreage capacity.
- **Ability to reach the poorest:** Acreage per farmer varies from 0.25 to over 50, but most KTDA farmers grow around half an acre of tea on average, most of them relying heavily on tea production for their livelihoods (over 60% of total income)

Farmer satisfaction and loyalty: Drop-out of farmers from the factory only happens when they quit tea farming altogether. However side-selling continues to be a recurring issue for KTDA as a whole (see last section on scalability and replicability of project). Interviews of farmers in one factory indicated that 80% of them voted at the Annual General Meeting, and 90% of them sold their tea exclusively to the factory.

Acceptance and usage: Smallholder farmers have been farming tea in the highlands of Kenya for over 60 years.

Is the project (economically) sustainable?

For smallholder farmers:

- **Initial cost:** Farmers contribute up to 50% of equity to set up a new factory (for a total cost of \$7 million shared between 5,000 to 20,000 farmers). This contribution is pegged to their individual green leaf production.
- **Recurring cost:** KTDA offers its loans at a 12% flat annual rate
- **Additional in-kind support received at farmer level if any:** Farmer Field Schools provide training sessions on cultivation, empowerment, community action and health

- **Cost of best alternative(s) and savings made thanks to project:** Local illegal hawkers buy tea from farmers for cash in hand (and not on monthly payments). This convenience is the reason why some farmers still side-sell a portion of their crop.
- **Additional income generated by solution:** In 2010, smallholder tea growers in neighbouring countries of East Africa received \$0.1-0.15/kg of tea leaf, around 1/4th of the return for KTDA farmers (\$0.5/kg)³⁹ Net additional income generated by the project in 2013/14: \$400 million were paid to 550,000 farmers.
- **Average factory annual turnover:** \$11 million
- **Operational costs:** processing and transportation costs typically represent 20-35% of the tea market price, with a record low at 18%
- **Operational profits:** The bulk of the net benefits from the sales of tea is redistributed to the farmers through the yearly 2nd payment (akin to a “bonus”). Remaining profits are minimal and paid to farmers as taxable dividends, or provisioned for investments.

For KTDA Holdings:

- **Revenues :** 2013/2014: \$600 million, 67% paid to farmers; 2012/2013: \$790 million, 75% paid to farmers
- **Financing:** Cost of training in Farmer Field Schools and Rainforest Alliance certification so far covered by KTDA Factories, IDH and Unilever in equal shares (for about 1.2 million € since the start of the current programme in 2013). From 2016, these costs will be entirely borne by factories through their extension budget. Research from IDH shows that once fully deployed, Farmer Field Schools would cost \$67/farmer/year, and Rainforest Alliance certification \$38/farmer/year.

Positive externalities: KTDA has exerted considerable influence on the business of tea and other crops in the country and abroad

- KTDA was instrumental in the move of the international tea auction from London to Mombasa in the 1990s, which allowed to cut significant storage and shipping costs
- KTDA has for the last 2.5 years been managing two factories in Rwanda.

Is the project environmentally sound?

Environmental sustainability strategy: Farmers are trained on sustainable agricultural practices to meet requirements for Rainforest Alliance certification. Both farms and factories must be up to standard. Training covers agronomic practices, crop diversification, soil conservation and water management.

Observed impact of the project on:

- **Land use and sustainable management:** Evidence of decreasing use of herbicides on field edges
- **Management of water resources:** Rainwater use is encouraged as opposed to irrigation. Rainforest Alliance training promotes better management of water resources
- **Biodiversity:** flora and fauna: Crop diversification is encouraged
- **Emissions of greenhouse gases and other air pollutants:** Boilers in KTDA factories mostly run on wood. KTDA factories have been investing in land for sustainable wood plantations that so far cover 47% of the area required to meet its energy requirements. It has also launched several mini-hydro projects to supply its factories with clean energy.

³⁹ Source: Monitor Inclusive Markets, 2014: “Beyond the Pioneer”, p52.

Is the project reinforcing local social capital?

Involvement and empowerment of local organizations and their leadership: By training farmers to become local trainers and leveraging farmer groups to organise and relay training, KTDA is facilitating local ownership and promoting resilient and inclusive social structures.

Involvement and empowerment of women: Women are heavily involved in tea farming activities. Each factory must have at least 1 woman among its 8 directors.

Is the project scalable and replicable?

Key challenges and possible solutions to scale further

- **Side-selling:** Although the Crops Act has criminalised unauthorised buying of tea, in areas where private factories are present, KTDA is facing serious competition from other buyers (hawkers), mainly middlemen selling to private processors. Farmers often side-sell even at a lower price to obtain ready cash rather than monthly payments. Side-selling also increases when factories are operating under capacity and tea prices are good. Factories are investing in communication on the dangers that side-selling represents for their operations and for the livelihoods of farmers, as well as in additional capacity to ensure they are able to rapidly process all of the tea harvested by their farmers.
- **Price fluctuations:** KTDA has faced challenges related to fluctuations in the global tea price which harm the income and livelihoods of its farmers. In 2013, due to a glut in Kenyan and most African teas, prices fell by 30% leading to a decline in farmers' revenues and political agitation. Smallholder farmers asked the government to provide them with subsidies. To mitigate this problem, KTDA is:
 - » Requesting the government to set up a price stabilization fund
 - » Diversifying income sources away from the Mombasa auction: 25% of KTDA tea is now sold directly
 - » Diversifying the product mix from the traditional CTC (Crush Tear Curl, the standard processing technique) teas to black and green orthodox teas, Oolong, white and other specialty products
 - » Creating subsidiary companies along the value chain to render cost-effective services to the factories
 - » Exploring other avenues like the Rainforest Alliance certification program to earn a premium from tea production that could boost market penetration
 - » Providing training on diversification of crops and sources of income (other crops; beekeeping; micro-enterprise) through the Farmer Field Schools.
- **Climate change effects:** The effects of climate change are already being felt in Kenya, with very variable harvests due to a higher occurrence of extreme meteorological events. KTDA insurance subsidiary is so far only offering health and life insurance, but is exploring crop insurance to mitigate these risks.

External pre-requisites for the project to replicate in a new country

- **Regulatory framework:** KTDA benefited from a favourable measure of governmental intervention: Kenyan authorities provided the necessary investment in infrastructure, guarantees for much needed loans and support to extension services through the Ministry of Agriculture as well as regulation through the Tea Act, but did not interfere with the management of the factories, which remained private entities since inception, allowing them to grow in a competitive and efficient manner.
- **Geological and biological specificities:** The climate in the Kenya highlands is among the best in the world for year-round tea farming.

Sources

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Contact person: Peter Mbadi, Senior Manager Agriculture Services, pmbadi@ktdateas.com

Exchange rate: 1 USD = 92 KSH

Khyati Foods

www.khyatifoods.com

India



Converting 15k smallholder farmers to organic production, by providing them with capacity building, sourcing their production, and selling processed products

Key insights

A high-touch organic conversion model, at >\$50 per farmer per year over time, can be more sustainable than a hands-off model: Before 2012, Khyati Foods (Khyati) used to work on a hands-off model, playing mostly a monitoring role in the organic certification of large groups of 500 farmers. In 2012 it developed a high-touch model, working with smaller groups of <30 farmers, which is actually more sustainable thanks to improved loyalty, higher penetration in villages, increased productivity, and stronger influence on crop selection. Loyalty is most critical in a capital-intensive organic business, where investments are recovered only after a 3-year organic conversion period. Khyati avoids dropouts and side selling by a) building trust-based relationships during conversion period with weekly or bi-weekly training and after conversion with community development support, and b) offering higher returns to organic farmers, by purchasing their outputs at farm-gate and paying for their transport. This is viable for Khyati thanks to exclusive certification agreements signed with farmers.

Khyati diversifies its products range to generate more revenue from the farmers whom it works with, while reducing its risks: As of end 2014, Khyati was only sourcing organic soya and cotton, which represent 40% of the total production of its farmers. The remaining 60% are rotation crops that Khyati cannot purchase, as it does not have the necessary processing facilities and would not be competitive as a pure commodity player. This represents an opportunity cost for farmers who pay middlemen and transport costs on these crops, and for Khyati who misses an additional revenue opportunity from its capacity building investments. Khyati is now in the process of investing in new processing facilities and entering the market of spices (e.g. turmeric, cumin) and dry groceries (e.g. chick peas, flax seeds, rice). In addition, this diversification would reduce Khyati's vulnerability to major crop disease in soya or cotton, or market price fluctuations.

Khyati invests in innovation to differentiate its organic products from competition and generate further premium: Khyati is an innovative company that invests ~3% of revenue in R&D, and partners with government research institutions to test its products. Its organic soya products are recognized as higher value as compared to the organic standard, allowing for a 5-10% premium above the organic market price. Indeed, the company designed a range of 16 soya-based products sold as cattle and poultry feed – adapted to the different stages of animal growth – while competitors only propose 2-3 products. Khyati also investigated the high protein properties of soya to develop special flour for human consumption, which will be sold in 2015 at a price 2-3 times above animal feed price, with a reasonable increase in production costs.

Description of project

History / Key milestones:

In 1999, Pawan Agrawal, a successful industrial entrepreneur and current Chairman, and Salil Gupta, an organic value chain expert and current CEO, founded Khyati as a company processing organic cotton sourced from 150 farmers. In the mid-2000s, the company decided to enter the organic soybean and soymeal market, to diversify its activities and answer a rising global demand.

In 2012, Khyati – which had grown to ~10k farmers – decided to offer more support to them through the promotion of groups of 20-30 farmers, usually registered as self-help groups (SHGs) or farmers' clubs.

Today, Khyati works with 15k farmers – including 8k already certified and 7k under conversion – and generates \$20m annual revenue from the processing and sales of 1.6k tons of organic soya, 8 tons of 'non-GMO' soya, and 4k tons of cotton. In order to support its expansion with diversified revenue streams, Khyati is now developing processing facilities to cover more crops and more products per crop.

Business model:

- **Role of key stakeholders in the value chain:**

Choice of asset / input	Financing	Asset / input purchase	Cultivation / asset use	Transport / processing	Agro-product sales
Khyati field staff helps farmers select seeds either purchased on the market or produced from previous harvest	SHGs and farmers' clubs can borrow from local banks to offer credit to their members	None	Khyati field staff supported by consultants, local NGOs and governments train farmers on organic practices	Khyati procures farmers' soya and cotton at farm-gate and processes it in its facilities	Khyati sells processed products to national and international buyers

- **Value proposition:**

Farmers working with Khyati are offered the following benefits:

- » Training on organic production provided by Khyati in-house field staff and external consultants paid by Khyati – which helps farmers save chemical fertilizer and pesticides costs in the short-term, and improve soil fertility in the long-term
- » Capacity building on general issues provided by NGOs or government agencies sponsored by Khyati – which helps farmers manage their group, obtain credit from banks, and deal with issues such as health or sanitation
- » Once they become organic, farm-gate purchase of harvested cotton and soya at market price – which saves middlemen and transport costs, and represent a strong incentive to go through the 3-year process.

The above support is provided at no costs to farmers, although organic production requires additional labour. The sustainability of Khyati relies fully on the margins generated from the sales of processed products.

- **Operations:**

- » Khyati runs a network of ~20 branches in Madhya Pradesh led by managers responsible for 500-1,000 farmers each and reporting directly to headquarters. A few of these branches are located in 'tribal' communities.
- » Managers lead a team of 5-10 in-house organic experts responsible for 3-5 farmers' groups each, i.e. 80-120 farmers. Organic experts are in charge of:
 - Supporting farmers who sell to Khyati: visit farmers on a weekly or bi-weekly basis, to monitor and support them. The nature of support is seasonal: seeds selection before cultivation (seeds are either purchased on the market or produced from farmers' previous harvest), general support on organic production (e.g. production of fertilizer from vermi-compost or cow dung, and pest management) during cultivation, and support on sales after harvesting. They also arrange for additional support from external consultants, local NGOs or government agencies, that deliver training sessions at group or village level against a compensation from Khyati
 - Promoting Khyati among new farmers.

- » Each branch has 1-2 staff responsible for the certification process, which requires continuous work on traceability and management of a yearly audit with certification agencies.
- » Khyati procurement is managed centrally with the support of field staff: farmers' production is purchased at farm-gate, transported to Khyati's processing facilities, tested, transformed, and sold to national (20%) and international (80%) buyers.

- **Revenue model:**

- » Khyati generates its revenue from the sales of processed organic (after farmers' certification) and 'non-GMO' (until certification) products. Margins are mostly generated from organic products, i.e. after farmers have gone through the 3-year certification process, which makes Khyati a capital-intensive business.
- » Margins on organic products are possible thanks to 'certification agreements' signed with farmers, under which only Khyati can sell the production of their farmers under the organic label. This allows Khyati to purchase from farmers at a standard market price and sell further at an organic premium of ~20%. Khyati even manages to increase its margins thanks to product differentiation.
- » Khyati has not been able to generate a premium on 'non-GMO' products. It however expects that this could be possible as it enters the human food market with soya flour.

Farmer demand creation and user adoption strategies:

- **Farmer acquisition:**

- » Village meetings: Khyati promotion activities start with village meetings organized by field staff in village key locations e.g. schools or marketplace. In a new village of 250 households, Khyati would expect 30-50 farmers to attend the first meeting. They would typically convince 3-5 farmers to go organic, and start working with them a few months before convincing up to 30 other villagers to follow.
- » Word-of mouth strategies: Khyati provides intensive weekly support to early adopters to ensure they will start organic conversion successfully, and spread the word to other farmers from the village. It supports the creation and extension of SHGs and farmers' clubs of minimum 15 members, including suppliers to Khyati and non-organic farmers that create strong opportunities for word-of-mouth and best practices sharing.

- **Farmer retention:** See 'Key Insights' section

Regulatory and ecosystem issues:

- Khyati buys soya at the local farm-gate price and sell in international markets. While international prices are on a relatively stable and generally increasing trend, local farm-gate prices are highly fluctuating (e.g. almost 20% variation in soya in 2014), which can create tensions for the business. The competition of subsidized economies on the international market also limits Khyati's margins.

Is the project impactful?

Improvement of productivity and incomes:

- As soon as they enter the conversion process, farmers save on chemical fertilizers and pesticides that were accounting for 5-10% of their income. For a typical farmer holding 2 acres of land, this would represent an annual net income increase of \$75-150. In 'tribal' communities where Khyati is working, farmers' annual income is \$1-1.5k for an average 7-member household.
- After 3 years, farmers who obtain the organic label are offered farm-gate purchase, which saves middlemen 'taxes' and transport accounting for ~10% of their soya production (i.e. ~4% of their total income), i.e. another \$50-100 savings per year. In addition, organic production improves soil quality and can generate higher yields by another 5-10% (\$75-150) within the 3-year conversion period.

Other additional benefit and social impact: Farmers get further benefits through the formation of farmers' groups. For example, most farmers previously had a mortgage on their land, for which they used to pay \$50-100 yearly interest to moneylenders. Cheaper credit through their group helps them repay these debts.

Scale and reach

- **Total number of farmers reached:** 15k farmers, 9k certified and 6k under conversion.
- **Rate of penetration in target communities:** Khyati's penetration in its operation areas increased after the implementation of the high-touch model, from 5-10% before 2012 to 10-15% today.
- **Growth rate:** 30% in 2013, as Khyati started processing non-organic soya purchased from farmers under conversion.
- **Ability to reach the poorest:** Khyati farmers are >75% from the BoP, including 54% holding less than 1 acre, and 21% holding less than 2 acres.
- **Farmers' loyalty and reasons for leaving:** Not a single case of drop out since 2012, while there were a few cases of farmers not respecting organic practices under the previous model.

Acceptance and usage: NA

Is the project (economically) sustainable?

For smallholder farmers:

- **Initial cost (\$):** NA
- **Recurring cost (\$/year):** ~5 hours of additional labour per week for a 2-acre farm, e.g. to prepare vermi-compost or fertilizer from cow dung.
- **Additional in-kind support received at farmer level:** NA
- **Cost of best alternative(s) and savings made thanks to project:**
 - » Chemical fertilizers and pesticides expenses of \$75-150 per year for a 2-acre farm
 - » Sales to middlemen 'taxing' and transport costs of \$50-100 per year
 - » Lower soil productivity reducing incomes by \$75-150 per year
- **Affordability:** NA
- **Additional income generated by solution:** \$200-400 per year for 8k farmers, and \$75-150 per year for 7k farmers

- **Additional net income generated by solution:** ~\$3m
- **Breakeven for farmer:** NA

For the central organization:

- **Revenue:** \$20m including around 65% from organic soya, 25% from 'non-GMO' soya, and 10% from cotton
- **Operational profits (EBITDA):** ~10% thanks to ~30% average gross margin on sales, covering support to farmers, certification, procurement and processing costs.
- Khyati's high-touch model costs around \$30 per acre, i.e. >\$50 per farmer, more than twice as much as the hands-off model
- **(Planned) breakeven date:** NA
- **Repayment rates:** NA
- **Financing:** Khyati is looking for >\$5m in debt and equity to support its diversification efforts and growth. Today its equity is mostly family-owned (>75%). In addition, Khyati has:
 - » \$6m in debt and term loans from Indian banks
 - » \$2m in yearly working capital loan from ResponsAbility
 - » \$1.8m in equity capital from SEAF
 - » \$50k in grant from the Canadian non-profit MEDA.

Is the project environmentally sound?

Environmental sustainability strategy: Khyati contributes to soil sustainability by promoting organic practices.

Environmentally-sound Operations: NA

Observed impact of the project: Conversion of 15k farmers to organic practices, most of them were previously using chemical pesticides and fertilizers.

Is the project reinforcing the local social capital?

Involvement and empowerment of local organizations and their leadership: The promotion of farmers' groups contributes to farmers' empowerment – for example they elect a group leader, and learn how to manage a savings account.

Involvement and empowerment of women: Khyati now works with ~5% women farmers (0% before 2012) and has among its partners some NGOs who deliver specific capacity building sessions to empower women, teaching them for example financial literacy or micro-enterprise management.

Is the project scalable and replicable?

Key challenges and possible solutions to scale further Khyati has developed an impactful support model for farmers, which however challenges its competitiveness on the low-margin market of processed organic products. Khyati thus started or is considering the following levers to improve profitability:

- **Diversify processed crops** to increase sourcing per farmer

- **Differentiate products beyond organic** to generate additional premium
- **Increase penetration per village:** There are multiple village fixed costs for Khyati, in particular associated with group trainings for farmers which haven't signed an agreement with Khyati yet. Hence, increasing the penetration of farmers in villages would increase the efficiency of operations, and Khyati plans to achieve this via continued word-of-mouth activation but however does not see that organic production could become a norm, since it requires additional labour and discipline that not every farmer can afford.
- **Capture additional premium with fair trade certification:** While Khyati has developed a unique model of support with high social value for farmers, international buyers either have little awareness or would not be ready to pay a premium. Khyati will launch a pilot in 2015 for 'fair trade' certification.
- **Generate revenue from sales of assets or inputs:** Khyati staff has built trust-based relationships with farmers that could be leveraged to sell them assets or inputs that would both enhance their productivity (e.g. seeds, organic manure, irrigation systems) and create another source of revenue for the company. Khyati is now considering the trial of a 'seeds bank' – buying seeds in bulk and reselling them to farmers – which would also help them influence farmers' cultivation choices. However for new activity Khyati will need to identify new sources of financing as its growth is limited by lack of capital.

External pre-requisites for the project to replicate in a new country

'Resource-poor' farmers: The first reason for farmers' conversion to organic is the savings on fertilizer and pesticides expenses – however this comes at the expense of increased labour, which they typically are more ready to provide.

No competing organic production company: 'Certification agreements' tie farmers with one single company for many years, and it is difficult to enter a market 'owned' by an existing company.

Environment favourable to farmers' groups: India has supported the formation of villagers groups for decades, and the latter benefit from both a high level of social acceptance, and adapted regulation (e.g. they can easily open a bank account and request credit from local banks).

Sources

Field visit to Bhopal and Jhabua area in February 2015, including interviews and meetings with Mr. Pawan Agrawal (Chairman), Mr. Salil Gupta (CEO), Mrs. Gunjan Agrwal (Financial Advisor), Dr. R.T. Patil (Chief Technical Advisor), Dr. Daniel Selvam (Head of International Operations), Raghuvir Singh (Social Enterprise Manager, Jhabua area), Ram Singh Darbar (Organic Expert, Jhabua area), CBOs of Gopalpava and Khalkhandavi and group leaders Santu Bhai and Kaliya Damar, Ajit Kelkar (CEO, AHRDO agro-consultancy), Ramesh Chandra Mevada (Project Coordinator, National Rural Livelihood Mission), Manju Dhak (Cluster Coordinator, Bread for Tribal NGO)

Khyati presentation, 'Welcome to Khyati Foods', 2015; Khyati presentation, 'Business case of small holder value chain', 2015

www.khyatifoods.com

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Exchange rate: 1 USD = 60 INR

Kuapa Kokoo Farmers Union

www.kuapakokoo.com/



Ghana

Selling Fairtrade-certified cocoa (partly through its own chocolate manufacturer), and reinvesting the premium earned into 100,000 Ghanaian farmers and their communities

Key insights

Membership in the Kuapa Kokoo Farmers Union (KKFU) empowers farmers and ensures democratic governance at all levels: The Kuapa Kokoo (“the good cocoa farmer”) Farmer Union is based on a cooperative structure whereby its village-level members elect executives who organise the sourcing of cocoa. The members elect two delegates who in turn elect both a District and national executive council. 2 farmers from each of the 1,300 villages are invited at the Annual General Meeting to vote on policies and budgets. This regular and direct involvement in governance provides a strong sense of empowerment to farmers, who are able to hold their elected executives accountable.

Channelling part of the Fairtrade premium back to farmers through social projects brings benefits to entire communities, and builds farmer loyalty: KKFU operates thanks to the premium it obtains from selling part of its cocoa as Fairtrade. Around 25% of that premium is directly distributed to farmers as a cash bonus per cocoa bag; 25% go to extension services and training to farmers; 25% are used to run the Union itself and cover certification costs; and the last quarter is directed to community projects through the Kuapa Kokoo Farmer Trust. Since KKFU joined fair trade in 1995, investments in schools, latrines, boreholes or corn mills have benefited some 450 communities. Furthermore, the democratic functioning of the union allows farmers to decide what investments they would like to be made in their communities.

Integrating into the distribution of Fairtrade chocolate products helps KKFU to secure Fairtrade sales and premiums: KKFU is the majority shareholder of Divine Chocolate, a UK-based chocolate manufacturer that it started with the help of the NGO Twin, and a private firm, The Body Shop. Divine Chocolate sources 100% of its Fairtrade cocoa from KKFU. This demand represents the bulk of the 30% of total cocoa production that KKFU is able to sell on the Fairtrade market. Indeed, demand for Fairtrade cocoa on international markets is low, representing around 1% of the world's cocoa production. The remaining 62% of the KKFU production are sold as standard cocoa without any premium to the farmer.

For a buyer of agricultural produce, limiting defaults on credit provision requires hands-on monitoring and careful loan allocation: The Kuapa Kokoo Credit Union (KKCU) was launched with the aim of providing access to credit to farmers. After several years of operation it had to scale down its loan portfolio due to a high default rate. Although KKCU was leveraging group solidarity to pool savings as collateral and limit risk, it failed to allocate the necessary staff to monitor the usage and repayment of loans, and to enforce the procedures required to avoid irrational allocation of loans, or their use as political favours. The necessity to repay the loans was also made insufficiently clear to some farmers who could not distinguish them from grants.

Description of the project

History / Key milestones:

Kuapa Kokoo (KK) was established in 1993, in the wake of the liberalisation of the Ghanaian cocoa industry, by a group of farmers supported by Twin, an NGO specialised in Fairtrade. The aim of KKFU was to rid the cocoa value chain of its inefficiencies and corruption. Facing a highly scattered landscape, they began by recruiting larger farmers to the first board with the hopes that this would motivate smaller farmers to join. More than 500 farmers across 20 villages were engaged at the start. They created Kuapa Kokoo Ltd. (KKL), to act as the co-operative's buying and trading arm.

In 1995, KKFU was Fairtrade certified, which enabled farmers to sell their produce at the minimum Fairtrade price and earn a premium on every ton of cocoa sold as Fairtrade. The co-operative also set up the Kuapa Kokoo Farmer Trust, responsible for receiving funds earned from this premium and redistributing them to community development projects.

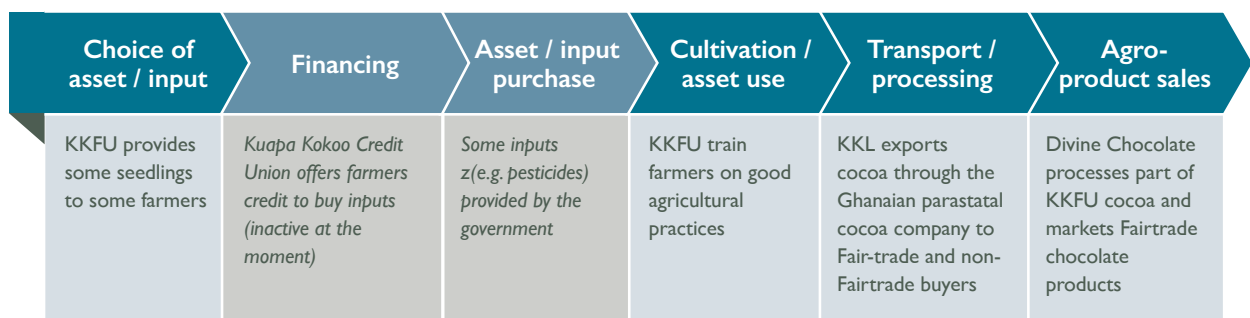
In 1998, KKFU and Twin, in collaboration with the Body Shop, founded Divine Chocolate to market chocolate products made from KKFU cocoa. KKFU now owns a 45% share in Divine Chocolate.

In 2000, KKFU established the Kuapa Kokoo Credit Union to make credit easily available to its members at affordable rates.

In 2014, KKFU had about 100,000 members, across 1,300 villages grouped in 57 districts. Most of these are small farmers working in remote areas. KKFU remains the only Licensed Buying Company for cocoa in Ghana operating on cooperative principles.

Business model:

- **Role of key stakeholders in the value chain:**



- **Value proposition:** Cocoa farmers that are members of KKFU have access to:
 - » Cash bonus: Part of the Fairtrade premium is redistributed as cash to farmers on every bag of cocoa sourced (representing 1-2% of total price per bag)
 - » Community projects: Around 30% of the cocoa sourced from farmers is sold as Fairtrade produce and earns a premium: KKFU uses that premium to invest in community development projects through the Kuapa Kokoo Farmer Trust. Farmers vote at the district and society levels for the allocation of funds to specific projects.
 - » Active participation in the management of the union both at the local and national levels: KKFU organizes farmers at the village level with elected executives that are in charge of sourcing cocoa.
 - » Fair weighing at the scales: contrary to other buyers who sometimes cheat with their scales, KKFU ensures scales are properly set and farmers fully paid
 - » Training: extension officers at the district level provide training to members of village societies on good agricultural practices and environmental preservation
 - » Credit: The Kuapa Kokoo Credit Union offers farmers access to credit, although lately it has suspended its operations due to a high default rate.

- **Governance:**

- » At the village level: Each of the 1,300 village societies is composed of executives elected by member farmers for 4-year, once-renewable terms. The president and secretary run the society; a treasurer keeps the books; a recorder plays the central role of collecting money from the district office, sourcing cocoa from farmers and making the payments. Executives receive a small compensation for their work (for the recorder, up to 1 kg per cocoa bag sourced).
- » At the District level: members elect 7-member district executive councils through a delegate system
- » At the national level: A 13-member national executive council is elected from members of the district executive council. Each year, KK's Annual General Meeting gathers 2 executives (1 male, 1 female) from each society to vote on strategic orientations, budgets and policies.

- **Operations:**

- » KKFU:
 - At the village level: Farmers transport cocoa beans to the KKFU village shed where beans are bagged and weighed, and farmers are paid cash by the recorder. Every 1-2 weeks, bags are transported to the district office by trucks.
 - At the district level: Each of the 57 district offices have storage sheds where bags are checked, sealed and stored before being transported to ports. Each office is manned by a full-time manager and depot assistant, as well as by an extension officer providing training to groups of farmers.
 - At the national level: At the Kumasi headquarters in central Ghana, managers supervise operations, oversee extension services, elaborate and pilot policies on gender, child labour, and the environment, and organise the union's general meetings.
- » KKL is the marketing arm of KKFU, and is in charge of running district offices and making payments to farmers
- » Ghana Cocoa Board (Cocobod): This Ghanaian monopolistic cocoa exporting company takes over the bags of beans at the district office and transports them to merchant ports from which it is exported
- » Cocoa Marketing Company: This subsidiary of Cocobod runs systematic quality control of cocoa bags at the district office and at the port
- » Divine Chocolate Co.: This UK-based chocolate manufacturer and marketer is partly owned by KKFU, but has its own professional management team. It sources all of its cocoa from KKFU (representing about 20% of KKFU's total volumes) and distributes Fairtrade chocolate products to consumers on the UK and US markets
- » Kuapa Kokoo Farmers Trust (KKFT): Distributes money generated from Fairtrade premiums to community projects
- » Kuapa Kokoo Credit Union: Provides credit to farmers (inactive at the moment).

- **Revenue model:**

- » Farmers are paid the fixed national price plus a Fairtrade premium of \$1 for every bag delivered to the society (the amount of that premium is set at the Annual General Meeting)
- » Societies retain a 1-2.5% margin on every bag sourced as compensation for their work, mostly to pay the staff/executives
- » After the sale of cocoa on international markets, Cocobod pays KKL the price at which the cocoa was bought from farmers, plus transportation costs plus a margin (around 10-12% of the farmer price). Cocobod claims that the price paid to farmers corresponds to at least 70% of the total export price.

» When a buyer of cocoa agrees to purchase KKFU cocoa as Fairtrade, it transfers the corresponding premium (\$200 per ton) directly to KKFU. The same applies for Divine Chocolate.

- **Certification process:** Fairtrade certification is ensured by Fairtrade Africa. It is renewed every 3 years through a renewal audit. If certain criteria are lagging, follow-up visits may be organised to verify their correction. KKFU bears the full cost of this certification (representing around 3% of collected premiums)

Farmer demand creation and user adoption strategies:

- **Customer acquisition:** KKFU membership grows within villages as more and more farmers become attracted by the cash bonus and transparency which KKFU offers. New village societies are founded when word of mouth spread from village to village and a minimum of 20 farmers are interested. Extension officers are then mobilised to organise and register new societies. They personally visit every applicant farmer before registering, to verify their compliance with the Fairtrade standards, check they are using only permitted chemicals, and assess their engagement to attend training sessions.
- **Customer retention:** The cooperative set-up allows farmers to share concerns and complaints. KKFU headquarters embark on communication campaigns (e.g. through radio talks) designed to raise awareness of the rights and benefits to which KKFU farmers are entitled.

Regulatory and ecosystem issues:

- KKFU represents 5% of the Ghanaian cocoa market, but 27% of the cocoa sold on the global Fairtrade market. Low demand for Fairtrade chocolate on international markets means that most (70%) of Kuapa Kokoo's cocoa is sold as standard produce. Kuapa Kokoo therefore cannot reach the full economic benefits of the Fairtrade premium.
- At the start of each season, the government of Ghana sets both the price per bag that farmers receive for their cocoa beans from Licensed Buying Companies (LBCs) such as KKL, and the price at which Cocobod purchases cocoa from LBCs. LBCs have to keep their operation costs within that imposed margin of around 12%. Prices to farmers are strictly enforced and LBCs cannot compete on price except when redistributing a certification premium, as KKFU does.

Is the project impactful?

Improvement of productivity and incomes:

- From the Fairtrade premium: cash payments to farmers represent 1-2% of the government's price per bag.
- From additional productivity due to training: although this has not yet been formally assessed in the field, KKFU expects its training on good agricultural practices to deliver a 30% increase in yield on average

Other additional benefit:

- Community projects: 450 communities impacted, including 8 schools and 7 latrines built, 350 wells and 19 boreholes dug, 56 corn mills installed (enabling farmers to sell corn flour and create a new source of income)
- Mobile medical unit: KKFU finances a medical team that tours villages to provide free medical care (6,000 farmers treated so far)
- Child labour (in cooperation with the International Labour Organisation): in societies where cases of child labour are reported, KKFU helps organise community child protection committees to address these cases.

Scale and reach

- **Total number of farmers reached:** 100,000 registered members in FY 2013-2014
- **Rate of penetration in target communities:** estimated between 50 to 80% (in villages where KKFU has been present for up to 20 years)
- **Growth rate** over the last 3 years: 14% CAGR in number of farmers
- **Ability to reach the poorest:** The average farm size is 4 acres. For most KKFU farmers, cocoa is the main cash crop. Many of them cultivate other food crops like maize, plantain and cassava.
- **Farmer loyalty and reasons for leaving:** The Fairtrade cash bonus allows KKFU to keep side-selling to an estimated 10% of crop harvested by its farmers. Reasons for side-selling include unavailability of cash-in-hand payment (KKFU recorders are not always able to collect enough cash from district offices), proximity to buying stations of different buying companies, or favouring a relative that has set himself up as a cocoa trader. In a few instances, village society executives themselves are tempted to sell cocoa to other companies, either when the KKL district office is short of cash and cannot pay for cocoa, or when competitors are offering them higher commissions.

Acceptance and usage: Cocoa farming is widely spread in Ghana, but sustainable agricultural practices such as multi-crop planting are still poorly adopted. Many cocoa farms are 40 years old or more and yield very little pods.

Is the project (economically) sustainable?

For small farmers:

- **Initial cost:** Farmers pay membership dues of \$0.25 every year. Before becoming a member, an individual or society must go through the application and training process. There are no other costs for joining KKFU.
- **Additional in-kind support received at farmer level if any:** Training, environmental techniques, and limited yet free access to tree seedlings (over 250,000 seedlings provided to 5,000 farmers). Loyal farmers are also rewarded with a machete at the end of every season.
- Cost of best alternative(s) and savings made thanks to project: Cocoa farmers in Ghana may sell their cocoa to any of some 30 Licensed Buying Companies. Some of these organizations also offer bonuses and 'rewards' such as community development projects to farmers.
- **Additional income generated by solution:**
 - » Through the Fairtrade premium: \$1 per bag, 10 bags per farmer per year = \$10 per farmer per year
 - » Through one-time improvement in productivity: +30%
- **Additional net income generated by solution:** In 2013-14: 1 million bags collected, \$1 premium per bag = \$1 million

For KKFU

- Revenues (projected for FY 14/15): \$2.5 million, 90% of which come from Fairtrade premiums; the remaining 10% include funding from partners for community projects, dividends from Divine Chocolate
- Expenditures in % of above revenues (projected for FY 14/15):
 - » Cash bonus to farmers: 28%
 - » Community projects: 23%

- » Extension services, monitoring and evaluation: 21%
- » Administration and headquarter staff: 19%
- » Incentives and social projects (including child labour and gender programmes): 6%
- » Fairtrade certification: 3%

For KKL

- **Revenues:** \$53m in FY 2013/2014
- **Operational profits (EBITDA):** The 12% margin attributed to KKL from the Cocobod allows it to balance its books, although adjustments in expenses are sometimes necessary to keep operational costs below this margin
- **Financing:** KKL requires heavy amounts of working capital, since farmers are paid on delivery of their cocoa to the shed, but KKL is only compensated by the Cocobod once the cocoa is sold and shipped, sometimes with significant delays.
- **Repayment rates:** Cost of financing is high in Ghana and KKL borrows most of its working capital at rates well over 25%, even though the government provides limited "seed" funding at a preferential rate (1.5% under the market rate). KKL has obtained a €356,021 (\$405,000) loan from a Rabobank/Triodos/Rootcapital consortium at a 6% rate for investment in transportation. KKL is actively looking for alternative sources of debt financing.

For Divine Chocolate:

- **Revenues:** \$12 million in FY 2013/2014
- **Operational profits (EBITDA):** 3% in FY 2013/2014

Is the project environmentally sound?

Environmental sustainability strategy: Farmers receive training on the proper use of chemicals, watershed management, replanting new cocoa and tree seedling (afforestation) and soil management.

Observed impact of the project on:

- **Management of water resources:** Half of the village societies have been supplied with containers for safe storage of chemicals.
- **Biodiversity flora and fauna:** In partnership with Swiss Chocolate buyer Halba and Purproject (a consultancy specialised in agroforestry), KK has led an afforestation project to plant 200,000 trees in and around cocoa plantations, in an effort to increase biodiversity, improve soil quality and resilience of cocoa farms to pests and diseases. It has also carried reforestation of areas attacked by parasites.

Is the project reinforcing the local social capital?

Involvement and empowerment of local organizations and their leadership: The structure of KKFU relies on the participation of the farmers to its governance. At the village level, KKFU spurs the structuring of democratic societies which play a major part in shaping the local social organisation and politics. Society executives are held accountable by the farmers who elect them (and even dismissed if they fail to deliver).

Involvement and empowerment of women: 42% of members are now women, from 23% in 2005. They tend to better follow recommended agricultural practices and produce better quality cocoa than men. At KKFU's headquarters, a dedicated management unit is coordinating actions to promote empowerment of women. KK has supported the emergence of 45 women groups which receive training on other non-seasonal income-generating activities. A revolving fund was set up to provide productive loans to some 500 women within these clubs.

Is the project scalable and replicable?

Key challenges and possible solutions to scale further

- **Low demand for Fairtrade cocoa on international markets:** Although all of KKFU's cocoa is Fairtrade certified, only 30% of it is sold as such, due to insufficient demand. The ownership of Divine Chocolate brings minimum volumes, but additional Fairtrade orders would allow securing more premium without significantly increasing costs (Fairtrade certification costs KKFU only 3% of the premium it receives). This would allow KKFU to provide even larger benefits to its farmers.
- **High financing costs for KKL:** Its working capital (paying farmers for their cocoa before being paid by Cocobod after exports) is financed at very high domestic interest rate (around 25%). KKL has been awarded some cheaper financing from international social financiers and is hoping to grow this more affordable source of finance.
- **Reviving the Kuapa Kokoo Credit Union by limiting default:** Lack of financing prevents most farmers from regularly accessing the inputs and services required to further grow their productivity. In order to resume providing loans to farmers, KKCU would require to set-up a better run credit operation, and access affordable refinancing.

External pre-requisites for the project to replicate in a new country

- Support from the NGO Twin and the Body Shop helped KKFU set up Divine Chocolate to promote and distribute Fairtrade chocolate. Replicating this integrated model would require similar support.

Sources:

Field visit to KKFU and KKL headquarters in Kumasi, Ghana, in May 2015, including interviews with KKFU staff: Appau Mensah-Abrampah, Executive Secretary, Frank Okyere, KKFU Compliance Supervisor; Evans Opoku Mensah, Child labour Officer; Francis Kwakye, Communication Officer; Monica Dadzie, Gender Officer; and Joseph Baba, Finance Manager at KKL.

Field visit to Amankwatia and Bepoah societies and Offinso district office near Kumasi, Ghana in May 2015, including interviews with district managers, extension officers, society executives and farmer members.

Making or Marketing a Difference? An Anthropological Examination of the Marketing of Fairtrade Cocoa from Ghana

www.theguardian.com/sustainable-business/fairtrade-partner-zone/2014/aug/28/kuapa-kokoo-farmers-cooperative-ghana-divine-chocolate

Contact person: Frank Okyere, KKFU Compliance Supervisor; fokyere@kuapakokoo.com

Exchange rate: 1 USD = 4 GHS

One Acre Fund

www.oneacrefund.org



Kenya, Rwanda, Tanzania, Burundi

Delivering a comprehensive service bundle on credit — including inputs and training — to the doorstep of over 200,000 smallholder farmers in East Africa

Key insights

One Acre Fund offers a unique, comprehensive package to address all farmers' issues at once, for which farmers are ready to pay a premium of over 25%. One Acre Fund provides inputs for local crops, in the right quantity, delivered before planting time, on flexible credit (repayment is simply due by the end of the harvest), training to maximize productivity, and insurance to protect farmers from harvest failure. This offer makes it as easy as possible for farmers to succeed, while giving One Acre Fund a unique competitive advantage over other input providers. Farmers are aware that the package price is higher than the costs of inputs but are happy to pay the premium in exchange for delivery of quality inputs before planting time.

One Acre Fund group lending structure limits risks and costs of lending to unbanked, small-scale farmers, as proved by a 100% repayment rate in 2014 in Kenya. One Acre Fund requires farmers to come as a group of 4 to 16 people. While farmers choose their own groups, One Acre Fund helps them by providing a draft constitution they have to fill in with their set of rules, encouraging for example the creation of saving groups. Farmers benefit from this group structure as they can perform collective farming activities. This helps build farmers' cohesion: if one farmer is sick, others will tend to his field. In addition, groups act as guarantors for each member: after final repayment date, groups have a 2-week grace period to repay for their member who has defaulted – this prevents the whole group from being ineligible to enrol with One Acre Fund the following year. This was a significant factor in the 100% repayment rate amongst One Acre Fund farmers in 2014 in Kenya. On the One Acre Fund side, such groups aggregate clients and hence limit outreach costs (for training, product distribution, repayment etc.).

One Acre Fund constantly innovates in order to remain relevant for farmers. Initially, the operation team was also tasked with coming up with innovations and testing them in the field, making it difficult to ensure quality in normal operations. One Acre Fund now has two distinct teams (innovation vs. normal operations), with different sets of targets. Successful innovations are then offered at full scale as part of the loan package. A dedicated innovation team, coupled with rigorous tracking of various indicators and of customer satisfaction, helps One Acre Fund to respond to changes in customer demand.

One Acre Fund manages to grow by over 50% per year while maintaining service quality, by streamlining all processes with standardized material and technology:

- **Training** with appropriate manuals and tutorials for each level of the field force, and systematic implementation checks (field managers check field officers' training, etc.), so that it trickles down to the farmer in a standardized way
- **Payment** with mobile money: 40,000 of the 80,000 farmers active with One Acre Fund in Kenya in 2014, and the field agents gathering the money of the remaining farmers, used MPESA (the main Kenyan mobile money provider) for loan repayments, making One Acre Fund the 3rd largest client in volume of transactions for MPESA. This avoided fraud issues, and considerably reduced money collection and auditing costs
- **Deliveries** with clear split of responsibilities and the support of IT. One Acre Fund experienced issues of bags of inputs disappearing in the delivery process during its first years of operations. One Acre Fund has since made employees personally accountable for the bags, each at their step of the delivery, from truck loading at the warehouse to final dispatch to farmers in the field. This allows One Acre Fund to find the culprit if anything happens – and has resulted in 99.9% correct delivery in 2015

One Acre Fund overcomes the operational challenge of offering fully flexible repayment schedules to farmers via adequate targets for its field staff.

One Acre Fund loans are accessible to those with minimal income or irregular cash flows thanks to a fully flexible repayment schedule over 10 months. This schedule has required operational adjustments. When faced with slow repayments, One Acre Fund used to strongly incentivize its field officers to recoup the money quickly, with two adverse effects: (1) the additional money spent on getting repayments sometimes exceeded the repaid amounts; and (2) Some field officers pressured their clients to repay and some clients complained of harassment. One Acre Fund solved these challenges with a rationalization of field officers' work (with daily objectives of gathering a minimum amount from clients, to avoid a rush and pressuring the farmers at the end of the lending period), resulting in only 0.1% clients complaining of harassment in 2014. One Acre Fund is thinking about incorporating "ethical behaviour" criteria in its computation of field officers variable compensation, to further lower this number

One Acre Fund limits expansion costs by expanding first organically to nearby geographical areas.

One Acre Fund mitigates high distribution, operating and learning costs (resulting from the entrance in a new geography), by expanding progressively its activities in regions that are contiguous to its current operations areas. That way, word of mouth between these areas can be leveraged.

Description of the project

History and key milestones:

One Acre Fund was founded in 2006 as a non-profit organization. One Acre Fund started by promoting passion fruit farming in Kenya but this was not a product that local farmers were accustomed to growing and the initiative did not take off. One Acre Fund then re-focused on the main crop of the region: maize. By 2009, One Acre Fund was providing seed and fertilizer on credit to around 8,000 farmers in Kenya and Rwanda.

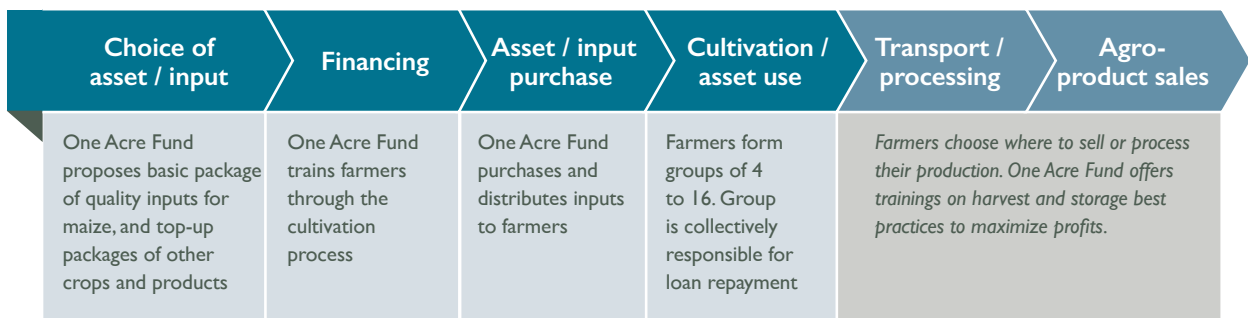
In 2010, One Acre Fund realized that the risk of poor harvest was jeopardizing its economic viability. It hence coupled credit with weather-indexed crop insurance. In 2011, it started offering solar lights as add-on products on credit. In 2013, a virus affecting maize crops in Kenya led One Acre Fund to diversify and start offering other crops in their loan package. In that same year, One Acre Fund was awarded Social Entrepreneur of the Year by the Schwab Foundation.

One Acre Fund operates in Kenya, Burundi, Rwanda and since 2013, in Tanzania. It also currently runs pilot operations in Malawi and Uganda.

Note: This case study focuses on One Acre Fund's "direct to farmer" model in Kenya. Prices and figures in the case study are for Kenya, unless otherwise specified.

Business model:

- **Role of key stakeholders in the value chain**



- **Value proposition:**

- » One Acre Fund offers smallholder farmers a comprehensive bundle of services to improve their harvest yield. The base (minimum) package is for maize seeds and fertilizers corresponding to the size of their land, purchased directly from quality manufacturers, delivered close to their farm just before planting time for main input delivery, and a few months later for the top dress delivery (additional fertilizers), on credit to be repaid at the farmers' convenience by a fixed date (in Kenya, the deadline is in September, after harvests). The inputs are insured so that farmers only repay a portion of the inputs to One Acre Fund if the harvest fails. When purchasing this package, farmers also get in-person weekly trainings on farming techniques and use of inputs, and on post-harvest handling and storage (so that farmers can sell their surplus crops several months after harvest when prices are higher).
- » In addition to these basic packages, farmers can purchase "top up" packages for additional inputs, storage bags and energy products (solar lights, improved cookstoves), also on credit.
- » These packages cost \$41 for 0.25 acre, \$64 for 0.5 acre, and \$117 for 1 acre (2015 pricing). As the minimum loan is \$54, farmers with the smallest package must take an additional loan (e.g., for a solar lantern). The maximum amount for a first loan is \$136, and goes up to \$201 for farmers who have planted previously with One Acre Fund.
- » To qualify for these loans, farmers must have access to land that they own or rent, not have defaulted in a previous season with One Acre Fund, and join as a group of 4 to 16. The group structure helps to ensure repayment, and also allows for collective farming activities (e.g., planting where each farmer assumes specialized roles: one digs holes, one places fertilizer, one covers fertilizer, one places seed and covers with soil). Farmers sign a contract with One Acre Fund (in September-October) indicating which package they choose. They have until end November to pay an advance amount of their choice to prove their commitment (the "starters' payment"), and then must pay a fixed portion of their loan (\$11 in 2015, the "prepayment") by the end of January to receive inputs.
- » One Acre Fund faces competition from some banks or informal money lenders for loans (but these offer cash loans, not seed-and-fertilizer on credit, nor do they deliver inputs or provide trainings) and seed suppliers (but these do not provide credit or training). Other NGOs do replicate One Acre Fund's model, but so far are a much smaller share of the market for inputs sold and delivered on credit.

- **Operations:**

- » Field officers recruit new farmers, train them and collect the money (their daily targets are to attend 2 group meetings, check farmers' progress in their farms, and recoup 0.5% of their total loan portfolio). They oversee between 60 and 200 farmers each (in regions where trials are run, field officers may serve as few as 60 farmers in order to leave time for testing new products or operational tweaks).
- » Field officers are organized into different operational units. As activity grows, One Acre Fund creates more of these units while strengthening and expanding the existing ones. Field officers can be promoted to field managers (1 for 4 field officers on average), and then to field directors (1 for 10 field managers) or assistant field managers (2 per field directors), who themselves can become senior field directors (10 for Kenya). All current senior field directors started as field officers.
- » Locally, each farmers' group must elect a leader who collects the repayment for the group and gives it to the field officer every week (this is changing in Kenya, as One Acre Fund switches to mobile payments made by farmers themselves via MPESA)
- » The field teams are supported by professional headquarters in each country, who handle finance, accounting, human resources, logistics, marketing and administration
- » In addition, a scale innovations team tests new operational ideas in the field, to be incorporated into the existing model if successful

- **Revenue model:** In Kenya, One Acre Fund has an average gross margin of 32% on the inputs it sells. This margin includes an average 13% mark up on bulk products, a 17% flat interest rate on input costs, crop insurance of ~5% of input costs, a fixed program fee of \$7.6, and a delivery fee (which also helps pay for storage and warehousing costs). Tanzania and Uganda have similar pricing structure. These fees aim at covering all the regular in-country activities of the organization, while costs related to new country scouting and government partnerships, innovations and M&E, and global support programs are paid for by donors. The rationale is that if One Acre Fund had to stop all corporate functions, the core model delivery would not be affected (only future expansion would be). In Rwanda and Burundi, One Acre Fund operates its direct-service model, but it also operates an agro-dealer model in which it distributes fertilizer, and extends credit, to local shops, as one of several distributors authorized by the Rwandan and Burundian governments.

Farmer demand creation and user adoption strategies: One Acre Fund does not use any mass media and relies exclusively on village-level promotion:

- **Customer acquisition:** The field team maintains good relationship with local officials (providing them with regular reports, etc.), who invite them to present at local events. At such events, One Acre Fund invites existing farmer clients to testify. One Acre Fund also uses a lot of merchandising such as T-shirts saying "100% repayment" for each farmer who repays a loan, or umbrellas for group leaders. One Acre Fund leverages every opportunity (such as the input delivery days) to advertise One Acre Fund with large banners and leaflets. Finally, field officers are farmers themselves, which helps create trust
- **Customer retention:** When a new season starts, field officers go back to the groups of the previous season and invite them to re-join. The amount of loan they can request increases for the first few years until a maximum limit (\$201/year in 2015). Annual customer satisfaction surveys help One Acre Fund orientate its promotions and incentive policy.

Regulatory and ecosystem issues: One Acre Fund has a government relations team, which maintains relationships with government officials at the local and national level. This largely involves sharing programmatic information via quarterly reports, coordination of field visits to observe operations, and tracking and weighing in on changes in agro regulations, as well as the state certification process for seeds and fertilizers.

Is the project impactful?

Improvement of productivity and incomes: Farmers enrolled with One Acre Fund see their agro-productivity increase by 10 to 60% on average (depending on crops, soil and climate), and by up to 300% in most favourable instances, in comparison to neighbouring farmers who face the same agro-ecological conditions (measurement based on physical harvest yields). Add-on products also generate additional income (e.g., solar lanterns – see dollar impact in section “Is the project economically sustainable”).

Other benefits: Farmers report that thanks to One Acre Fund, they can feed their families year-round, can pay for school fees for children, suffer less from theft as everyone has enough maize to eat, are more united as a community, and are generally more confident about the future. With the extra income they earn, some farmers invest in productive assets such as livestock and small businesses, further increasing their revenues. One Acre Fund also encourages farmers to diversify their crops to mitigate their risks.

Scale and reach

- **Total number of farmers reached:** 130,400 in 2013 (Kenya – 65,400, Rwanda – 54,000, Burundi – 9,600, Tanzania – 4,300), 203,600 in 2014 (Kenya – 80,400, Rwanda – 86,650 including 11,550 only purchasing solar lanterns, Burundi – 27,400, Tanzania – 9,150), 280,000 in 2015.
- **Rate of penetration in target communities:** around 15% (depending of its time in activity, as well as competition).
- **Growth rate:** In all One Acre Fund countries, +51% farm families year-on-year between 2013 and 2015.
- **Ability to reach the poorest:** 100% poor users (among new farmers). Average salary is less than \$0.50/person/day
- **Farmers' satisfaction and loyalty:** Between 2014 and 2015, there were 65% repeat clients (actual number probably higher as some households register via a different member from one year to the next). Dropouts are due to farmers going to competition (that offer slightly cheaper prices, although farmers often go back to One Acre Fund in following years as they value One Acre Fund reliability), purchasing the seeds directly from agro dealers (as after one season with One Acre Fund they can have the cash to do so), receiving subsidized seeds from government programs, or being unable to secure land (for those who lease it). Between the September initial order and the final qualification for the loan with the January prepayment, One Acre Fund has ~ 30% drop out (One Acre Fund is working on understanding why).

Acceptance and usage: One Acre Fund sells local crops and inputs from brands that are known to farmers. Informal farmer groups are common, both for internal savings and lending or to help each other out in cultivating the land.

Is the project (economically) sustainable?

For smallholder farmers:

- **Initial cost (\$):** In 2015, upfront payment of \$11 to qualify for the loan
- **Recurring cost (\$/year):** In 2015, loan of on average \$85. Average amount paid to One Acre Fund is hence 96\$/ farmer; 68% of which is input costs, and the rest the cost of additional services (training, input delivery, loan, insurance) and overhead.
- **Additional in-kind support received at farmer level:** Input delivery close to their homes just before the harvest, weekly training on farming techniques and post-harvest storage techniques to prevent food loss.
- **Cost of best alternative(s) (\$) and savings made thanks to project:** No alternative for this type of loans. One Acre Fund package is on average 27% more expensive than purchasing the inputs alone with delivery, but includes many more services (loan, insurance, training).
- **Affordability:** One Acre Fund packages represent 10 - 30% of the harvest selling price (depending on land fertility and productivity)
- **Additional income generated by solution:** For One Acre Fund overall (average in all countries of activities):
 - » Increase in farmer agro-profit of \$101/farmer in 2014, corresponding to + 36%/ farmer and + 43%/ acre planted compared to farmers outside of One Acre Fund. In addition, farmers are able to cultivate more acres as they are able to afford more inputs
 - » Additional profit of \$27/farmer from other One Acre Fund products (e.g., savings from owning solar lanterns compared to kerosene lamps)
 - » Total additional profit of 128\$/farmer compared to non-One Acre Fund farmers.
- **Additional net income generated by solution:** For One Acre Fund overall (all countries), \$18 million in 2013 (130,400 times \$139), \$26 million in 2014 (203,600 times \$128)
- **Breakeven for farmer:** For One Acre Fund overall (all countries), farmers' investment pays back within the year. The extra investment in One Acre Fund compared to traditional farming had an ROI of 201% in 2014 (each extra \$1 invested in One Acre Fund, brought them \$2.01 of extra profit)

For the central organization: For One Acre Fund overall (all countries):

- **Revenues:** In 2014, \$14.1m sales and \$4.5m gross margin for "direct to farmer" programs, and \$5.2m sales and \$1.3m gross margin from agro-dealer programs, or a total of \$19.3m sales and \$5.8m gross margin from commercial programs
- **Operational profits (EBITDA):** Negative (-54% if counting only field operations for the direct to farmer program, -34% if counting field operations for the direct to farmer and agro-dealer programs). Overall in 2014, 56% of One Acre Fund total budget covered by grants (operational loss, overhead for expansion, fundraising)
- **(Planned) breakeven date:** Not profitable (aim to have local operations self-sustaining in the future, increasing the share of expenses covered by revenues year after year)
- **Repayment rates:** Consistently between 95 and 98% over past 5 years, for farmers who complete the prepayment. In Kenya in 2014, 100% repayment (taking out farmers who died or those with bad harvests for whom the insurance kicked in, and including 50 individuals whose group paid for)

- **Financing:** Grants of 23.1m in 2014 and planned 24.7m in 2015. Main donors: Bill and Melinda Gates Foundation (\$11 million over 5 years); MasterCard Foundation (\$10 million over 4 years); and Barr Foundation (\$3.7 million over 3 years); Walmart Foundation (\$1 million for 2014). Refinancing at 0% interest from Kiva (\$2.8m in 2015, or 19% of loan portfolio)

Positive externalities: N/A

Is the project environmentally sound?

Environmental sustainability strategy: One Acre Fund trainings aim at enabling farmers to “make a positive contribution to the long-term health of their soils and to their environments”. For instance, it encourages farmers to compost, and mix chemical fertilizers with organic ones. In line with this strategy, One Acre Fund also sells clean energy devices as top up loans

Observed impact of the project on:

- **Land use and sustainable management (including pesticides etc.):** optimized quantities and types of fertilizers to maximize production at minimum costs for farmers
- **Management of water resources:** NA
- **Biodiversity:** NA
- **Emissions of greenhouse gases and other air pollutants:** 91,000 solar lanterns and 4,000 cook-stoves (in pilot phase) ordered for 2015, reducing CO₂ emission.

Is the project reinforcing the local social capital?

Involvement and empowerment of local organizations and their leadership: Farmers must be organized in groups to join One Acre Fund, and are given guidance to form successful ones

Women involvement and empowerment: In Kenya, 60% of One Acre Fund registered members are women. One Acre Fund believes this is an underestimate of the women involved as in East Africa, it is more common for men to sign contracts.

Is the project scalable and replicable?

Key challenges and possible solutions to scale further

- Expand back-end processes and systems to support field operation growth. One Acre Fund has grown very quickly over the past few years. The back-end (IT systems, support people at local HQ etc.) is reaching its maximum capacity and will need further investment to support the growth to come (e.g., the company is moving to mobile payment in Kenya but the current IT system cannot track those automatically, requiring local HQ to register manually mobile payment receipts for 40,000 farmers)
- Diversify into larger loans both to better serve clients and increase revenues. Some of One Acre Fund clients leave because they want larger loans. Increasing the credit amount progressively for farmers with a proven track record, with new top up products or with assets (e.g., poultry, cows etc.), could increase client loyalty and revenues for One Acre Fund. In Kenya, where One Acre Fund currently does not earn revenues for 3 months between main rainy seasons, One Acre Fund is thinking about new loans with extended payment periods or different cycles to bring in revenues in this “lean” season

- Balance the number of clients per field officer and the quality of the service they offer. While financial sustainability calls for more clients per field officer, an obvious risk is lower service quality resulting in unsatisfied clients. Some innovations are helping solve this challenge, such as mobile payment, which saves field officers' time, and One Acre Fund is exploring other possibilities, such as delegating more of the current field officers' work to group leaders.

External pre-requisites for the project to replicate in a new country

- Sufficient density of low productivity smallholder farmers and sufficient market for their product. One Acre Fund expansion in Ghana failed as there were too few maize farmers. Expanding to new geographies require that (1) the area is sufficiently densely populated with farmers growing the same crop to allow field officers to serve at least 200 households each within a reasonable distance, (2) these farmers have so far low yields and low use of fertilizers and (3) the local market can absorb additional production without price crash.
- No free distribution of inputs. When governments run input subsidy programs, farmers sometimes wait for the possibility of free or reduced-price fertilizer, which may not actually become available in time for planting.
- Well accepted group-based lending or at least informal savings groups.
- Flexible sources of funding. This model of flexible payment terms for farmers is made possible by the internal working capital pool that One Acre Fund has built over 9 years of operations. More traditional sources of funding would probably require a different – less flexible – financing model. One Acre Fund could use the repayment data it has gathered over the past few years to set up such a less flexible scheme, following farmers' proven capacity to pay over time.

Sources

Field visit to Bungoma, Kenya, in January 2015, including participation in field managers training and interviews with Stephanie Hanson, Senior Vice President of Policy and Partnerships, Alex Hasbach, Director of Kenya Field Operations; Phil Tuson, Kenya Finance Operations Manager; Benn Lombard, Kenya Field Operations Associate; Senior Field Directors, Field Officers and clients

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www.oneacrefund.org/uploads/all-files/One_Acre_Fund_Annual_Performance_Report_2013_revise.pdf

Contact person: Stephanie Hanson, Senior Vice President, Policy & Partnerships, Stephanie.Hanson@oneacrefund.org

Exchange rate: 1 USD= 92 KSH

PRAN Dairy Hubs (Tetra Pak)

www.pranfoods.net &

www.tetrapak.com/about-tetra-pak/food-for-development



Bangladesh

Promoting Dairy Hubs to help 10,000 smallholder farmers increase their productivity, sourcing their milk, and generating revenues from the sales of processed dairy products

Key insights

Direct sourcing from smallholder farmers, producing <10L milk per day, can be sustainable with a dense network of collection centres associated with a compelling value proposition: >90% of dairy farmers in Bangladesh own less than 5 cows and produce very small quantities of milk that do not justify long distance transportation. Tetra Pak and Tetra Laval Food for Development inspired and supported PRAN in launching a Dairy Hub (DH) model that could be sustainable in such context. Today PRAN runs 3 DHs and each of them counts 20-25 milk collection centres in a radius of 15-25km, i.e. one centre for every 1-2 villages. This enables even the smallest farmers to come and deliver their milk twice a day. Sustainability for PRAN requires a minimum daily volume of 40-50,000L milk per DH, which they achieved in their first DH thanks to penetration of 60%, improved productivity, and strong loyalty. PRAN indeed offers a compelling value proposition to farmers, which guarantees them to collect 100% of milk at market price, ensuring them a steady source of income and encouraging investments.

In order to convert farmers to better practices, DH need to offer improved products and services at doorstep and offer continuous incentives: PRAN not only trains farmers on how to optimize their productivity, it also provides them with the products and services needed to do so. For instance, within each DH, dedicated teams provide on-call veterinarian and artificial insemination services, and local shops for quality cattle feed and other inputs. Continuous incentives ensure that best practices are applied over time: first, DHs not only rewards farmers who provide more milk, but also those who provide higher quality milk (fat content), as a result of improved practices. Second, PRAN recently launched an incentive scheme that rewards loyalty and consistency in hygienic practices for farmers who deliver non-bacterial milk every day in clean recipients, consecutively during one month.

DH make sure that farmers have already adopted improved practices before they invest, to create trust and ensure successful investments: For new farmers, the initial training focus on improving productivity with better cattle management and feeding practices, e.g. continuous water availability or smart feed selection, which can be done at no cost. Once farmers have taken the first steps right, PRAN encourage them to invest in techniques (e.g. veterinary care) and equipment (e.g. milking machine) that may require credit. At this stage, farmers have already adopted improved practices that ensure they will fully benefitted from their investment, and have sufficient trust to do so. This hence ensures full satisfaction for these farmers and positive word-of-mouth.

Promotion activities are needed even before DH opening to achieve fast penetration ramp up and recover capital investments: Each DH needs at least \$1 million investment in equipment (20-25 chilling tanks, electric generators, buildings, weighing equipment, motor bikes, computer systems etc) and \$0.5 million in operations per year (80-90 staff) – thus requiring to reach a critical size quickly to become viable. PRAN actually starts its promotion during site selection, going door-to-door to survey farmers about their interest in joining a DH, organizing village meetings and tours of successful farmers who managed to increase their revenue with DH sourcing and improved practices (veterinary care, feeding, attendance to meetings, etc.) Infrastructures are installed only when a sufficient number of potential early adopters are identified. The 1st DH achieved >60% penetration within 2-3 years. Penetration is however growing more slowly in the 2nd DH and PRAN will receive grant support to cover operations costs in the new DHs that it plans to open.

Description of the project

History / Key milestones:

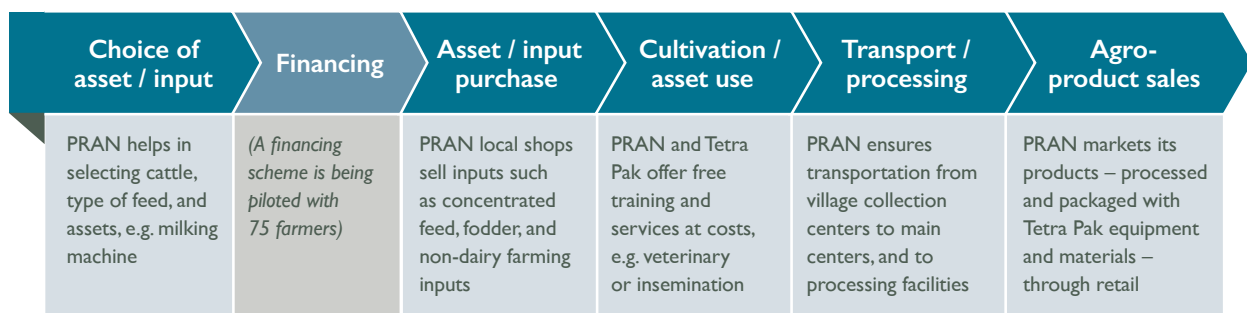
Tetra Pak, part of Tetra Laval Group, is a global leader in processing and packaging equipment and materials and has more than 50 years of experience of helping governments to implement school milk programmes, as a way to create demand for locally produced and processed quality milk in parallel with improving the health and learning capacities of school children. In year 2000 the Food for Development initiative (FfD) was set up to more systematically provide expertise to governments about school milk and school feeding programmes and to link these programmes to dairy development programmes. In year 2008 as a response to the food crises Tetra Pak took the initiative to develop the Dairy Hub concept as a way to help customers in developing countries get access to more locally produced milk and better quality milk. In 2009 the first DH was initiated in Pakistan with a local partner, Engro Foods. FfD with support of sister company DeLaval, a world leaders in systems for milk production, further developed the Dairy Hub Concept, and introduced the concept to PRAN in Bangladesh.

PRAN, part of PRAN-RFL Group, is the largest food processing company in Bangladesh, and one of the leading national dairy players. It produces UHT milk (60% of total dairy activity), pasteurized milk (20%), milk powder, and other dairy products (cheese, butter, etc.). PRAN opened a first DH in 2010 in Western Bangladesh, a second in 2011 and a third in 2013. Tetra Pak has been providing in-kind expertise, and recently helped PRAN secure a grant for replication from the Swedish development agency (SIDA).

Today, PRAN sources daily 90,000L of milk from 10,000 farmers in 3 DHs. With 45kL per day, the 1st DH actually enables PRAN to source at lower costs than its traditional agent-based channel, which demonstrates the strong profitability potential of the model. PRAN is also building a new processing facility to support its growth.

Business model:

- **Role of key stakeholders in the value chain:**



- **Value proposition:**

- » DHs guarantee farmers to collect 100% of their milk production at market price at their doorstep, and pay them weekly in cash or on a bank account. The market price is set by PRAN depending on market trends – there are usually one or two adjustments per year within $\pm 10\%$ – and is roughly equivalent to the prices offered by the other major national dairy players, BRAC and Milk Vita. This varies around \$0.50 per L, which is 20% above the price offered by middlemen. Farmers get a bonus (or penalty) of \$0.01 for every 1/10th percentage point of fat above (or below) 4.0%.

- » The DH staff provides free training to farmers on a bi-monthly basis, in order to help them increase their yield, milk quality, and income. These trainings are organized directly in the farms, at the DH 'headquarters', or in a recently launched Dairy Academy. Topics include feeding, breeding, disease management, calf rearing, etc.
 - » The DH staff also sells a range of on-site services, e.g. vaccination (\$6 for a 5-year vaccination), worms treatment (\$1.8 per year), or artificial insemination (\$3.6 for 300 days). Each DH also counts 2-3 shops, where farmers can purchase concentrated feed (\$0.5-2.5 per cow per day depending on cattle type), fodder, or non-dairy farming products such as seeds and fertilizers. Services and products are sold at costs to ensure affordability for farmers and provide another distinctive advantage to encourage them to join the DH.
 - » Lastly, DHs encourage farmers to make asset investments such as milking machines, for which PRAN negotiated a price of \$1,000 with suppliers, or bio-digesters that farmers would purchase locally.
- **Operations:**
 - » PRAN leads DHs operations, and has been supported by a Tetra Pak-sponsored full-time dairy expert until 2014.
 - » Each DH covers a 15-25km radius, and sources milk from 2,000-5,000 farmers. It counts one main collection centre – serving as 'headquarters' and equipped with several larger cooling tanks and a total cooling capacity of 25,000L (50,000 per day) – and 20-25 village collection centres – a single-room building hosting 1,000-2,000L chilling tanks and quality control equipment, covering 1-2 villages (100-200 farmers) each. In addition, 2-3 collection centres including the main one serve as local shops for agricultural inputs.
 - » Farmers bring their milk production (4-10L daily) to their closest village collection centre twice a day, where it is tested for fat, bacterial content, and added water, sugar, starch, etc. It is then transported to the main collection centre, where it is tested once again and finally sent to PRAN processing facilities (near Dhaka).
 - » The total PRAN headcount for a DH is 80-90. Each village collection centre employs 2 full-time staff each, and there is 1 Extension Service Officer (supervisor) for every 2 centres. In addition, 4 technicians are in charge of artificial insemination and veterinary services, and 15 employees are responsible for quality controls and administration together with additional staff for maintenance, technical services, cleaning and security. The DH manager monitors the whole value chain according to a set of performance indicators, such as volumes of milk collected, quality (fat and bacteria) of collection, number of farmers trained, services delivered, sales of inputs, etc.
 - **Revenue model:**
 - » PRAN generates margins on processed dairy products only. Services and products provided to farmers are either given away for free or sold at cost.
 - » DH is a capital-intensive model that requires high volumes of milk collection to be sustainable. The grant of SIDA will specifically support the operations of the new DHs until they increase their volumes to the break-even point, which has been estimated between 40,000 and 50,000L per day.
This break-even point however depends on consumer price and associated margins. With the support of Tetra Pak, PRAN is leading marketing campaigns to promote UHT milk, a fairly new product for Bangladesh. By fostering demand, PRAN hopes to progressively increase its selling price, currently around \$1 per L, to the levels of South East Asia, around \$1.5 per L.

Demand creation and user adoption strategies:

- **Farmer acquisition:** See Key Insights section
- **Farmer retention:** The guarantee of daily purchase along with comprehensive servicing is a unique value proposition that no other competitor could offer in the DH area, which enables PRAN to retain its farmers.

Regulatory and ecosystem issues:

- **Market distortions:** The two main competitors of PRAN on the Bangladeshi dairy market are Milk Vita, which is supported by the government, and BRAC Dairy, which is supported by donors. Subsidies and grants allow them to work on tight or negative margins. PRAN hence needs to constantly innovate and differentiates its offer – it was the first player to introduce UHT milk and is still leader on this market.
- **Political instability:** Bangladesh is frequently going through major political strikes that impede transportation across the country. This creates tensions for PRAN business and its 100% collection engagement with farmers.

Is the project impactful?

Improvement of productivity and incomes:

- For 95% of farmers in Bangladesh, dairy is the second source of income after agriculture. The DH projects however enabled 60-65% of the farmers in the project to turn dairy production into their primary source of income.
- In its 1st DH, PRAN recorded an average increase in farmers' monthly revenue from dairy of 100-150% from \$100 to 230 per month, driven by:
 - » Purchase of new cattle and replacement of low-productive local cattle (2-4L per day) with cross breed cattle (6-12L per day)
 - » Improved breeding, feeding, veterinary, and cattle management practices that enable to increase yield for a given cattle by 50-100%, and milk fat content by 10-15%
 - » Increase in sales price, from \$0.40 per L with middlemen to \$0.50 with DHs
 - » Guarantee to sell 100% of production whatever volume they produce vs. uncertainty of the traditional middlemen channels – in addition, very smallholder farmers used to sell their milk production at local markets opened only 5 days per week.

Other additional benefit and social impact: Replacement of imported milk powder by locally produced milk

Scale and reach

- **Total number of farmers reached:** 10,000 farmers are selling to DHs, including 3,000 in the 1st DH, 5,000 in the 2nd DH, and 2,000 in the 3rd DH.
- **Rate of penetration in target communities:** Around 60% within 3 years for the 1st DH.
- **Growth rate:** The number of farmers has grown on average by 41% per year in the 1st DH and 29% per year in the 2nd DH
- **Ability to reach the poorest:** >80% smallholder farmers with less than 5 milking cattle
- **Farmer satisfaction and loyalty:** No dropout. Rare cases of farmers discontinued by PRAN for petty corruption cases.

Acceptance and usage: NA

Is the project (economically) sustainable?

For smallholder farmers:

Farmers can apply best practices to their existing cattle. The following describes the opportunity for a farmer investing in one cross breed cow and applying improved practices.

- **Initial cost (\$):** \$1,500 investment for one cow offering 5 years of high milk yield
- **Recurring cost (\$/year):** \$900 annual expenses (fodder; artificial insemination, veterinary care) that enable high yield at 12L per day (300 days per year), sold at \$0.50 per L to the DH (net income per year: \$600)
- **Additional in-kind support received at farmer level:** Training
- **Cost of best alternative(s) and savings made thanks to project:**
 - » Local cow with unimproved practices: \$500 investment and \$100 annual expenses, yield of 2-3L per day sold at \$0.40 per L to middlemen (net income per year: \$50-150)
 - » Cross breed cow with unimproved practices: \$1,500 investment and \$500 annual expenses, yield of 6-8L per day sold at \$0.40 per L to middlemen (net income per year: \$100-300)
- **Affordability:** The initial investment often represent >50% of farmers' total annual income, hence financing solutions are often required. PRAN started to pilot credit guarantee but only to a subset of <100 farmers.
- **Additional income generated by solution:** PRAN registered monthly income increase from \$100 to \$230 after 3 years.
- **Net additional income:** ~\$10m (assuming lower impact for new farmers)
- **Breakeven and payback for farmer:** Farmers pay back their investments in cross breed cows within 1.5 years instead of 2.5 years under former practices

For PRAN DHs

- **Revenues:**
 - » 1st DH: ~\$15m (~15mL UHT milk at \$1 per L)
 - » 2nd and 3rd DH: ~\$8m (~8mL UHT milk at \$1 per L)
- **Operational profits (EBITDA):**
 - » 1st DH: 0-5% EBITDA margin on processed product sales with 3-5% DH costs over sales thanks to approximately 45,000L collected per day
 - » 2nd and 3rd DH: <0% EBITDA margin (volumes are too low)
- **Additional in-kind support:** SIDA will fund operations of the new DHs (see below)
- **(Planned) breakeven date:** 2-4 years per DH
- **Repayment rates:** NA
- **Financing:**
 - » The capital investment in a DH is ~\$1 million and covered at 100% by PRAN. PRAN is financed through its own operations, and a number of Bangladeshi banks and the IFC
 - » The yearly costs of operations of ~\$0.5 million which have so far been covered by PRAN, will be partly covered by SIDA for the new DHs in the coming 5 years.

Positive externalities: NA Job creation also outside the farm, for instance with sale of inputs, veterinarian drugs, etc as well as in connection with the processing & packaging of the milk, distribution and retail of the milk etc.

Is the project environmentally sound?

Environmental sustainability strategy: PRAN is implementing wastewater treatment solutions such as ponds in its main centres to safely dispose of the water used for cleaning jars and pots that are used to transport milk to the chilling tanks. PRAN is also promoting bio-digesters among DH farmers (300 sold to date).

Observed impact of the project: NA

Is the project reinforcing the local social capital?

Involvement and empowerment of local organizations and their leadership: NA

Involvement and empowerment of women: In 2014, 8% of farmers in DHs were women. SIDA has set gender equality in its top priority for Bangladesh, and PRAN plans to implement specific monitoring.

Is the project scalable and replicable?

Key challenges and possible solutions to scale further

- **Ensuring successful replication:** While the 1st DH is a clear success, the 2nd DH is taking more time to reach profitability. It has been settled in a more challenging area that had not been historically involved into dairy production and where farmers have mostly low-productive local cows contrary to the 1st DH. Large initial capital investments however constrain PRAN to quickly reach high volumes, which is more difficult in this context. Another challenge is consistent staff performance: in order to ensure sharing of best practices, PRAN decided to transfer 50% of its experienced staff from existing to new DHs.
- **Financing equipment and manpower at scale:** PRAN targets 20 DHs by 2020. Considering losses in the first 2-4 years of each DH, this would represent at least \$40m in capital investment. DHs are also skilled-labour intensive. PRAN has started a Dairy Academy that trains staff, farmers, as well as 200+ students per year; among which ~50% are recruited by PRAN. PRAN also experienced that training staff adequately significantly limits churn.
- **Providing financial and insurance services:** The lack of credit is a clear limitation for farmers who want to grow their cattle, invest in equipment such as milking machines, or re-structure debt from moneylenders to sell to DH instead. Those three cases would allow the volumes of DH collection to grow faster. PRAN has started a pilot with 75 farmers, linking them with banks and offering a corporate guarantee.
- **Increasing revenue per farmer:** PRAN is already selling inputs, assets and services to farmers, however not generating any margin. In particular, PRAN is buying ingredients to produce concentrated feed in a 2T per day factory. This could be an opportunity to sell products at low but positive margins – and enhance the DH model sustainability while still offering low prices to farmers.
- **Avoiding petty corruption:** In order to avoid petty corruption between PRAN staff and farmers (e.g. recording of higher fat contents or quantities as actual production), PRAN has set up a strong IT-based monitoring and auditing system. Beyond control, this helps PRAN in managing the DHs' performance.
- **Fostering demand for UHT milk:** Along with DH costs, the other key lever to PRAN sustainability is the consumer price of UHT milk.

External pre-requisites for the project to replicate in a new country

- **Strong project set up:** Tetra Pak and PRAN are two leading corporates involved on the whole downstream dairy chain, who can influence policies and markets and invest in the long-term.

- **High density of smallholder farmers:** Doorstep collection, which is central in this DH model, is possible only in a setting where it is needed – i.e. farmers' production is too small to justify transportation costs – and possible – i.e. there is a sufficient density of farmers to cover high volumes in a small area.
- **Government infrastructures:** The lack of appropriate infrastructures, in particular roads for transportation, and electricity for milk chilling plants – is a big challenge for PRAN and may limit its ability to replicate in new areas.

Sources

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Samriddhi (Helevetas and SDC)

www.bangladesh.helvetas.org

Bangladesh



Developing a network of lead farmers earning a living by offering tailored goods and services in their communities, hence reaching 700,000 farmers at limited cost

Key insights

Samriddhi reached 700,000 farmers in less than 5 years with only 25 program staff by developing and supporting associations of lead farmers: Leveraging previous SDC projects, Samriddhi promoted and provided capacity-building to associations of 50-60 lead farmers ('Local Service Providers') – i.e. respected individuals who offer technical and business solutions to 200-300 farmers in their community against a service fee or commission. The reach of one association ('Service Providers' Associations') is >10,000 farmers, which enabled strong efficiency gains for Samriddhi, as well as for private companies (inputs manufacturers, traders, financial institutions) and governments agencies mandated to support the local agricultural sector:

Tailoring value proposition to farmers at scale requires a bottom up service design approach in each community: Following a methodology designed by Samriddhi, lead farmers start by organizing meetings with 20-50 villagers to identify income generating opportunities, following a six steps process: assessment of potential products and activities, market survey, survey analysis, selection of strategies, development of a work plan, and implementation. Under lead farmers' guidance, sub-groups of 5-10 farmers are formed to assess opportunities and interviews local stakeholders (traders, wholesalers, processors, retailers, etc.), analyse demand for products or supply capacities. Lead farmers then offer services that farmers are willing to pay for, e.g. connections with input suppliers, traders or MFIs, support in setting up bulk purchase or sales, technical and management training, rental of equipment, veterinary services, etc.

Market facilitation is required over time and needs to be taken over by financially viable entities: Samriddhi was a grant-funded project that ended in February 2015. Its exit strategy consisted in turning associations of lead farmers into formal structures that could take over the market facilitation role that the project had been playing until then, i.e. coordinating partnerships with private companies and local governments, recruiting and training lead farmers, and continuously innovating to match farmers' needs. Samriddhi helped turn these associations into commercial entities, by having them bill membership fees, earning commissions on the services provided by lead farmers, charging commissions from private companies, as well as for warehousing fees and equipment rental.

Aligning incentives may however not be sufficient to sustain grassroots organizations: While lead farmers, governments, and private companies all have a vested interest in seeing the associations thrive, only 21 out of 58 were considered sustainable in 2014. Associations that remained weak are typically informal, their executive committee is composed of volunteer lead farmers (whose capabilities and performance vary widely), they do not employ any full-time staff, and they have very limited financial resources. They also struggle in leveraging private sector support because they cannot guarantee sufficient benefit to potential partners. On the contrary, successful associations benefit from skilled leadership and run successful partnership with corporate, e.g. with medicinal plants companies to whom they can guarantee purchase via contract farming models.

Description of the project

History / Key milestones:

Samriddhi ('prosperity' in Bangla) is a rural development project that has been funded by the Swiss Agency for Development and Cooperation (SDC) and implemented by the Swiss NGO HELVETAS between August 2010 and February 2015, in Western and Northern Bangladesh.

This project capitalized on one decade of work with local communities of previous SDC projects. These projects had already been working on the identification of lead farmers, and trained them so they could support other farmers in their village. As the capabilities of lead farmers increased, the latter progressively diversified their value proposition and charged higher prices for their services.

Samriddhi brought sustainability to the whole effort by helping form and structure lead farmers in associations, and facilitating linkages with all value chain players. It conducted research to develop relevant value propositions and models for 12 sectors, including livestock (bull fattening, dairy, duck and chicken rearing), crops (fruits, vegetables, medicinal plants), fisheries and crafts.

By December 2014, Samriddhi had directly reached 700,000 farmers through 3,500 lead farmers in 58 sub-district based associations, and established linkages with 100+ agro companies. SDC recently launched a tender for a follow-up project with a view to introduce social outcome provision, e.g. health and education in addition to economic value chain support.

Business model:

- **Role of key stakeholders in the value chain:**

Choice of asset / input	Financing	Asset / input purchase	Cultivation / asset use	Transport / processing	Agro-product sales
Lead farmers help farmers select assets and inputs	Lead farmers help farmers to form groups and link them with financial institutions w/ help of Samriddhi	Lead farmers buy inputs in bulk or establish linkages with sellers (w/ help of Samriddhi) against a commission	Lead farmers support farmers in adopting improved practices against a fee	None	Lead farmers help organize bulk sales or establish linkages with buyers (w/ help of Samriddhi) against a commission

- **Value proposition:**

Samriddhi staff supported lead farmers in designing distinctive value propositions for farmers including:

- » Training provided individually or in-group, against a commission on bundled sales (e.g. 2-3% on new seeds sales that require training) or against a fee (e.g. \$2 for a 60-minute group training on vegetable cultivation).
- » Sales of inputs at discounted price, often purchased/stored in bulk via their association. On the 10% discount achieved thanks to bulk purchase, they would typically keep 3% and leave 7% to farmers.
- » Provision of services, e.g. veterinary services, spraying for crop protection, cattle selection, against a fee or commission on bundled sales.
- » Rental of assets and equipment, which can be owned by lead farmers' associations.

- » Purchase of outputs: lead farmers can either facilitate linkages with traders, or aggregate production in the warehouses (which is for instance the case of medicinal plants) before selling to traders, against a 2-5% commission.
- » Access to credit, savings or insurance solutions, via their association.

Samriddhi initially facilitated many of the linkages with buyers, input providers or financial institutions.

- **Operations:**

Samriddhi had 25 'program staff' (technicians and managers) and 25 'support staff'. The project was active in 4 regions of Bangladesh, each of them with 1 manager and 3 sector specialists. The remaining program staff was in Dhaka headquarters.

Samriddhi primarily worked with lead farmers' associations, which it helped create and structure over time, meeting them monthly and supporting them with:

- » Recruitment: Samriddhi promoted associations from the existing base of lead farmers trained over former SDC projects (predecessors of Samriddhi) and helped these associations design their own recruitment processes.
- » Capacity-building: Samriddhi linked associations with government agencies and private companies that provided them with technical training, for free or against a fee (that was then partly or entirely paid for by Samriddhi).
- » Coordination with private companies (input providers, traders, and MFIs): each association works with ~5 private partners.

Lead farmers lastly help farmers organize in groups of 20-50 members who can then buy, sell and access financial services more easily.

- **Revenue model:**

While Samriddhi was a 100% grant-funded project, it aimed to set up sustainable organizations that would continue to thrive after the project's end:

- » Farmers increase their revenue thanks to improved practices and services, access to financing, lower input prices, and more attractive product sales.
- » Lead farmers generate income from service fees and commissions on sales.
- » Associations generate income from margins on inputs and outputs, rental fees on assets, and membership fees.
- » Private companies expand to new suppliers and clients and reduce their transaction costs.

Farmer demand creation and user adoption strategies:

- **Customer acquisition:**

- » Samriddhi helps associations recruit local respected lead farmers, who convince new farmers with a bottom up service design approach (see Key Insights section).
- » Samriddhi encourages associations to adopt demonstration-based marketing strategies, where lead farmers organize meeting between new farmers and successful old ones.

- **Customer retention:**

- » Lead farmers' strategy to retain producers consists in both ensuring satisfaction via regular home visits and follow up support, and constantly upgrading their value proposition – e.g. by extending their range of individual and group service, establishing warehouses, offering new technologies, etc.

- » Associations don't face major problems in retaining their lead farmers: there were some anecdotal cases of dropouts, e.g. after lead farmers obtaining a formal job or women lead farmers getting married.

Regulatory and ecosystem issues:

- Recognition of lead farmers and associations: Most lead farmers associations are still operating informally and are limited by some regulations (e.g. cattle vaccination officially possible only with certifications), which slows down the model institutionalization.
- Political instability: Bangladesh is frequently going through major political strikes that impede transportation across the country, and adds to the vulnerability of farmers especially for perishable crops. In addition this makes coordination for project staff difficult.

Is the project impactful?

Improvement of productivity and incomes:

- \$185 average yearly income increase (from \$450 to \$635) based on a sample of 230,000 farmers that were part of farmers' groups.⁴⁰
- Production capacity (e.g. more cattle) and switch to higher value crops (e.g. medicinal plants, vegetables, fruits) were the main drivers of income increase (as compared to savings on middlemen margins).

Other additional benefit and social impact: Technical and management training.

Scale and reach

- **Total number of farmers reached:** 700,000 farmers, including 230,000 organized in 6,000 groups of around 20-50 members each, and 570,000 served individually
- **Rate of penetration in target communities:** On average 53% of farmers in a target village would use lead farmers' services.
- **Growth rate:** NA
- **Ability to reach the poorest:** >90% farmers have less than 5 acres
- **Farmers' satisfaction and loyalty:** Samridhi conducted a few satisfaction surveys on non-representative samples of farmers' groups. One of them reveals a 77% satisfaction score (see Challenges section).
- **Size:** From an initial uncoordinated 1,500 lead farmers, the project counts today 3,500 lead farmers organized in 58 associations.

Acceptance and usage: It took a few years for lead farmers to switch from being volunteer helpers to professional service providers that other farmers would remunerate, in particular regarding training and 'soft' services. Their support is now widely accepted by farmers who observe significant gains from lead farmers' services.

⁴⁰ Impact was not measured among the remaining farmers that did not belong to farmers' groups. It was very likely lower since lead farmers could not provide them with financing, group trainings, or group purchase (but only with individual services such as veterinary care)

Is the project (economically) sustainable?

For smallholder farmers:

Evidence on 'bull fattening' among 45,000 farmers⁴¹

- **Initial cost:** \$300 for one 70kg bull + \$5 commission to lead farmer for bull selection and advice on feeding and management practices
- **Recurring cost:** \$95 to fatten one bull within 4-month vs. \$120 to fatten one bull within 8-month with former practices
- **Additional in-kind support:** NA
- **Cost of best alternative(s) and savings made thanks to project:** \$20 savings per bull – most farmers can raise 3 bulls at a time, i.e. \$60 savings in total
- **Affordability:** NA Additional income generated by solution: \$185 average from a survey of a representative sample of farmers' groups across all sectors supported by Samriddhi – Hence this data is relevant only for 230,000 farmers

- **Net additional income:** ~\$50 million per year
- **Breakeven for farmer:** <6 months (e.g. bull fattening) to >2 years (e.g. mangoes)

For lead farmers:

- **Income generated:** Lead farmers earn \$700 per year on average (\$400 to \$2,000 depending on sectors). Approximately half of them still have other activities, including farming of their own land.
- **Initial investment and breakeven point:** NA
- **Loyalty/churn:** Not available

For associations of lead farmers:

- **Income generated:** Most associations are still fragile (no full-time employee and volunteer Executive Committee, annual budget below \$3,000)
- **Initial investment and breakeven point:** NA
- **Loyalty/churn:** Not available (anecdotal)

For Samriddhi:

- **Project costs:** Around \$9 million for 4.5 years, i.e. \$2 million per year

Positive externalities: NA

Is the project environmentally sound?

Environmental sustainability strategy: Improved practices promoted by lead farmers include use of cow dung and vermi-composting or judicious use of fertilizer and pesticide, which have a positive impact on environment.

⁴¹ There are wide variations in the performance and reach of the 12 sectors. For instance, both medicinal herbs and bull fattening benefited from significant productivity gains, but bull fattening is less inclusive for women and ultra poor because of high investment costs. The opposite would be jute craft, which has low barriers to entry but did not benefit from significant productivity increase for lack of innovation.

Observed impact of the project: Not available.

Is the project reinforcing local social capital?

Involvement and empowerment of local organizations and their leadership: Samriddhi aims at empowering local organizations and individuals at each level of the value chain: 58 associations of 50-60 lead farmers, 3,500 individual lead farmers, 6,000 groups of 20-50 farmers, and 370 groups of 3-10 groups of farmers. Samriddhi promoted democratic governance for these institutions where members elect their committees and agree on strategies to increase capabilities and resources over time.

Involvement and empowerment of women: Women empowerment was part of Samriddhi's mandate. First, the 12 sectors were selected based on actual or potential involvement of women (e.g. 70% of producers in cotton crafts and 71% in duck). As a result, over 50% of beneficiaries are women. However, only 21% of lead farmers are women, and there is still a large income gap between gender (around 1/3), which is partly explained by lower mobility and ability to invest.

Is the project scalable and replicable?

Key challenges and possible solutions to scale further

- **Ensuring sustainability of associations:** see Key Insight section.
- **Ensuring that efficiency gains reach farmers:** While Samriddhi's reach is impressive, it could not monitor its impact among farmers directly, nor the redistribution of the gains generated through improved value chains – reduction of transaction costs or economies of scale. It however tries to involve representatives of farmers' groups in more regular discussions with associations of lead farmers.
- **Ensuring consistent quality and availability of service delivery:** Because of its hands-off model, Samriddhi has little control on the services delivered by the lead farmers. According to one satisfaction survey, 23% farmers were unsatisfied either because they could not access a loan or because the inputs they were requiring was not available at the right timing.

External pre-requisites for the project to replicate in a new country

- **Productivity gains in selected sectors:** The jute craft sector – which had been selected by Samriddhi because of its potential for inclusiveness of women and ultra-poor – had to be discontinued in 2013 because sector growth was too low. While improving market linkages is key for value chain players, the value captured by farmers from cutting middlemen only does not appear sufficient to justify lead farmers services, when these are not associated with increased production capacity and improved practices.
- **Pre-existing social structures and acceptability of group models:** Samriddhi leveraged one decades of intervention in promoting and empowering community-based organizations. While many groups were setup by the project facilitation, previous empowerment work facilitated the work greatly. Samriddhi faces many more challenges in Northern Bangladesh – the regions where SDC activities started through HELVETAS only in 2004.

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