Endline Evaluation: AgriFin Mobile

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Executive Summary

Agri-Fin Mobile was a six-year, multi-country programme that partnered with key, local private actors to derive business models that delivered bundled agriculture and financial services to smallholder farmers. These services were intended to leverage both existing and emerging digital technologies and mobile networks to attempt to maximize impact and scale.

Mercy Corps, with funding from the Swiss Development Corporation (SDC), was the connective tissue within the AgriFin Mobile ecosystem, using its local networks and experience in rural and agricultural development to link private sector partners and platforms to the population of smallholder farmers. Its long-term goal was to facilitate access to information and financing, and to enhance yields and eventually livelihoods. AgriFin Mobile ended in August 2018.

> Across all cases, Mercy Corps was a key convener of diverse stakeholders who would likely not have connected otherwise. It reduced friction between partners, facilitated customer acquisition across the board, and leveraged its contextual and topical expertise in rural agriculture to assist partners enhance product design, communication and targets.

This evaluation was conducted specifically to examine the extent—nine months after the programme's conclusion—to which Agri-Fin Mobile activities continue to affect and influence local private sector partners and, crucially, the extent to which they serve smallholder farmers and their operations.

The broad goals of AgriFin Mobile, combined with significant differences across cases—whether culturally, among value chains, or between private sector actors and even their respective platforms—permitted great heterogeneity in how the programme was implemented and likewise how outcomes manifested. Given this variation, this report is organized first by location, with chapters dedicated to how AgriFin Mobile activities continue to play out in each Indonesia, Uganda and Zimbabwe. These chapters are rich in detail, based on extensive qualitative data collected in each country through interviews and focus groups with respondents spanning the value chain and programme implementation chain, as well as a range of stakeholders including leadership of partner organizations and local Mercy Corps offices. These chapters allow a more complete and detailed description of how local context impacted outcomes, as well as insight into the intricacies of AgriFin Mobile and its desired outcomes.

Additional chapters, however, are dedicated to cost effectiveness at the country level and an overall programme evaluation. The cost-effectiveness analysis leverages programme-level expense data and reported project outcomes to understand the relative efficiency of each approach. This is used as a jumping-off point for exploring AgriFin Mobile from a value for money perspective. The final chapter is organized around the cornerstone OECD-DAC evaluation criteria—relevance, effectiveness, efficiency, impact and sustainability. This chapter is intended to capture the themes, experiences and activities that cut across each case, and that speak to AgriFin Mobile at large.

Overall, AgriFin Mobile reveals the challenges inherent in experimenting and working with new partners and new technologies. The programme, on the ground, faced many obstacles, some of which continue to hamper effectiveness and sustainability. Programmes in Indonesia and Zimbabwe face serious challenges going forward. Some of this stems from forces outside of the programme's control—regulatory changes and a currency crisis, respectively. Some challenges are inherent in programme implementation, and are a function of training, communication and the technology itself. Gender was routinely cited, or at least noted, as something that had come up in meetings, but which substantively was poorly addressed. Each of these aspects are explored in detail.

Silver linings and positive takeaways are highlighted throughout as well. In Uganda, for example, bundled services on a large scale were not accomplished before project end, but private sector actors directly traced their viability and competitiveness to AgriFin Mobile interventions. Both—Ensibuuko and TruTrade—continue to grow strategically and serve smallholder farmers through their platforms. From a cost perspective, all country cases also demonstrated general improvements to efficiency and delivery to key populations within a relatively short lead time. Across all cases, Mercy Corps was a key convener of diverse stakeholders who would likely not have connected otherwise. It reduced friction between different partners, facilitated customer acquisition across the board, and leveraged its contextual and topical expertise in rural agriculture to assist partners enhance product design, communication and targets.

1.0 INTRODUCTION AND BACKGROUND

1.1 Life After AgriFin Mobile

AgriFin Mobile officially concluded in August 2018. A November 2018 Final Report was hugely positive in its review of the programme, arguing that AgriFin Mobile had achieved “100 percent progress” for each of the designated indicators for Outputs 1-7. Only an indicator for smallholder farmer awareness of rural advisory services (RAS) was rated as 60 percent successful (Output 4). Otherwise, the programme, by its conclusion, had successfully managed to implement adequate workshops and training of trainers (Output 6), implement marketing plans and capacity building strategies (Output 5), maintain bundled RAS (Output 3), and demonstrated effective partnerships (Output 1) with “economically viable” business plans (Output 2).

Given the positive trajectory that characterized AgriFin Mobile in late 2018, Mercy Corps commissioned a post-hoc evaluation in order to determine how and to what extent AgriFin Mobile investments and activities continued to influence or affect private sector partners, business operations, and by extension the target smallholder farmers themselves, nine months after the programme’s conclusions.

This report is intended to address this question specifically and was designed as a process evaluation informed by qualitative methods. This is a very different task, and underlying question, than what was being examined in previous evaluations. This report endeavours to specifically detail, and question, how things were conducted, identify “pain points” as well as innovative solutions and successes, and trace how this affected implementation and conduct in the field. It is therefore no surprise that this report—between its intentions, methods, and timeframe (nine months after funding and official support to partners has ended)—presents a more complicated picture.

Most obviously, from the perspective of this report, is that AgriFin Mobile remains a concept, or target, rather than a unified project, with varying degrees of success both across and within countries. For this reason, each country is examined in detail first, before project-level takeaways are articulated in a separate chapter.

1.2 Methods

The research team and its authors assessed outcomes throughout the study by leveraging qualitative feedback from an array of stakeholders, including smallholder farmers. Additionally, investigators purposefully and regularly probed for how activities were either informed, adjusted or implemented to address gaps among implementers—and reciprocally how activities were perceived, utilized or found limited, among target group members and activity participants.

Special care was taken to gauge consistency of feedback (versus individual anecdotes) and to validate findings by following up with different partners, both during May 2019 field work and through subsequent email communication. In Zimbabwe, as an illustrative example, investigators gathered feedback on the relevance of bulk SMS “farmer tips” by interviewing major relevant stakeholders: EcoFarmer leadership that implemented tips, local Mercy Corps leadership that conceived of the idea, University of Zimbabwe staff who drafted the message content, farmers who received the messages and who could determine their value, and finally the contractor hired to push out the messages and staff the farmer hotline—ostensibly meant to address farmers’ questions that stem from the tips themselves—on the mechanics of the messaging. This provided a detailed pattern of strengths and weakness and ample qualitative data with which to gauge the relevance of this aspect of the programme, as well as how it reflects relevance more broadly, in this context.

In addition to qualitative feedback, quantitative data was taken from administrative sources, such as existing monitoring and evaluation reports, project dashboards, and budget documents. While contributing to an overall understanding of effectiveness of management, the data also lends itself to assess the project from a cost-effectiveness standpoint. By using spending data and outputs to explore efficiency trends, the analysis is further able to tie together contextual realities to project outputs and assess how the AgriFin Mobile structure might explain additional factors observed. Taken together, this context and data contributes to understanding the value and limitations of the programme from a value for money perspective.

Finally, investigators made a determined effort to assess relevance from a gendered perspective. Specifically, they again probed stakeholders from across the implementation chain to understand the extent to which gender was incorporated into design, implementation, stakeholder feedback, partner leadership and programme monitoring—either systematically, passively or altogether absent.

2.0 INDONESIA

2.1 Background

In Indonesia, key stakeholders behind two distinct business models engaged in coordinated efforts to align existing private sector actors to target smallholder farmers. Both approaches expanded on Mercy Corps’ role as an essential convener and reduced customer acquisition costs and barriers for private sector actors to engage the smallholder farmer community.

2.2 The Indonesia Business Models

The Agricultural Financing Model for Corn Farmers

Within the Agriculture Finance Model, for example, Mercy Corps played a central role as a facilitating and convening body amid an ecosystem of business and banking partners, attempting to create a digitized bundled service. This process resulted in a loan product bundled with a range of services, such as agricultural inputs, agronomist support, built-in insurance support, and access to information through a mobile digital platform.

The multi-stakeholder structure provided a business model that fostered market entry and new service offerings to smallholder corn farmers, particularly insurance for harvest failures from weather-related events. The ecosystem and value chain approach has proven most valuable to service providers by de-risking their provisioning of services to smallholder corn farmers. Mercy Corps played a key role in stakeholder recruitment and coordination, though several factors related to the regulatory environment and internal coordination between stakeholders have introduced uncertainty that makes it unclear whether these benefits will persist past AgriFin Mobile's conclusion. The service offerings are still dependent on annual commitments by each of the partners in the model and the mobile platform was not successful in integrating those offerings onto a single delivery channel.

Given limited evidence of a formalized system or process to govern these annual commitments, the individuals within each bundled service provider organization, who manage the process, have become critical to the continuation of the programme. As a result, staff turnover at key providers and cessation of Mercy Corps' convening role have put the model at risk. In interviews with non-lending service providers, the transition of staff at BPR Pesisir Akbar, the retail lender, raised concern about whether the loan programme would continue to be supported given the regional banks' role in managing much of the loan processing and maintenance. Due to regulatory constraints on the retail lender to the farmers, BPR Pesisir Akbar also halted loan issuance in the final year of the programme despite the participants in the model, including Mercy Corps, having signed a memorandum of understanding (MOU) to implement the model from October 2017 to May 2018. In interviews, representatives of the retail lender indicated it is working with the regulator to remove the constraints.

Bank Mandiri: Agent Banking and e-Cash

Separately, Bank Mandiri worked with AgriFin Mobile on revising a pre-existing agent banking service, empowered through its mobile-enabled e-cash product, to smallholder farmers through farmer groups. The model was highly dependent on mobile phone integration, both for localized delivery of financial services by Bank Mandiri agents, and for financial account access by farmers on their mobile phones.

Given that Bank Mandiri's agent banking and e-cash products were already viable commercial offerings independent of the AgriFin Mobile project, the bank's involvement with AgriFin was ultimately to test and develop a distribution strategy for financial services to overlooked, rural farmer populations and did not involve the bundling of financial and information services. Despite this obvious limitation in programme effectiveness, leveraging Mercy Corps data and information regarding appropriate communities and lead agent recruitment, AgriFin Mobile was able to facilitate e-cash's entry into a smallholder farmer community.

2.3 Emergent Themes and Key Experiences

Technical Limitations and Strengths

Under the multi-partner agricultural financing model, the mobile delivery channel developed by 8 Villages proved to be ineffective as a direct-to-farmers delivery channel as had been envisioned. The software platform evolved throughout the project cycle to become a mobile-enabled data collection and documentation platform used by partner service providers, rather than a robust platform for farmers to access agricultural advisory services by mobile phone.

In the Bank Mandiri model, there was no bundling of farmer advisory services and no service providers beyond Bank Mandiri. The Bank Mandiri agent banking/e-cash extension model relied heavily on the mobile channel for the delivery of the bank's financial services to farmers. The services were accessed via mobile phone by Bank Mandiri e-cash agents and directly by farmer use of the bank's mobile-enabled e-cash transaction platform.

Rural Digital Financial Services: Supply and Demand

Farmer Financing Model

With each phase of the AgriFin Mobile project, the available capital for extending credit to farmers through the agricultural finance model expanded, reaching more farmers, providing larger loans and, following phase one, including insurance as part of the bundled service package. The inclusion of an insurance product was brokered through existing Mercy Corps contacts, specifically at ACA Asuransi (ACA), an Indonesian insurance agency. Prior to their work with Mercy Corps, the agency had not considered corn farmers to be a viable customer base.

Insurance became a condition of the loan once ACA agreed to participate in the business model after the first loan cycle. Default loan risk, therefore, was not insured in that first phase, which appears to have had long-lasting implications for the model. Specifically, in 2018 the regulator in Indonesia halted issuance of any loans by the retail lender under the model based on its concern about the bank's level of non-performing loans.

The continuous expansion and size of the loan portfolio suggests that demand by smallholder corn farmers for bundled service offerings was significant. On the supply side, capital was provided by two entities: OK Bank and BPR. OK Bank, a majority state-owned financial institution, provided the bulk of the financial capital, while BPR, a regional bank operating in the areas of interest, oversaw the direct management and maintenance of the loans. Feedback from these entities indicated their ongoing interest in continuing to expand the lending to smallholder corn farmers using the model. As discussed in greater detail below, however, external regulatory constraints, particularly increased oversight from government agencies, inhibited use of the model in the final phase and after cessation of the AgriFin Mobile project.

A separate 2018 Impact Assessment reports that all 229 farmers participating in the agriculture finance model sourced loans with BPR as their main lender (however, only 62-63 percent indicated they were satisfied with the loans).[1] Farmers indicated in field interviews for this assessment that the cash component of the loan issued under the AgriFin Mobile model was not sufficient, and expressed a preference for an all-cash loan scheme. While this farmer preference may exist, a full cash distribution of the loan proceeds would eliminate many of the de-risking elements that make the model attractive to the bundled service providers. This includes the structure where insurance premiums are paid directly to the insurance firm by BPR. From there, loan proceeds are applied to the purchase of inputs through the issuance of a voucher. This voucher is redeemed through a collaboration with Syngenta, the private sector agronomy firm involved with the AgriFin Mobile programme.

[1] Palladium (2018). Impact Assessment of Mercy Corps AgriFin Mobile Programme: Agriculture Financing Model for Corn Farmers in Sumbawa Island, West Nusa Tenggara. Pages 53,53

During interviews for this report, however, the bundled service providers participating in the model indicated that BPR Pesisir Akbar was not the only credit source available to smallholder corn farmers. Corn farmers, it was reported, access financing informally as well as through Bank BRI, another financial institution. However, this lending product did not include bundled services such as the insurance product, nor the issuance of a voucher to access approved agricultural inputs from Syngenta. Data provided by OK Bank and compiled in the table below illustrates that the loan product's supply and demand continued to grow over time.

Table 1. Wholesale lender data suggests consistent growth in total lending

Year	Funding (IDR)	Farmers	Hectares	Farmer Growth	Lending Growth	Hectares Financed Growth
2014	3,200,000,000	198	385,000			
2015	9,728,000,000	640	1,202,000	223 percent	204 percent	212 percent
2016	12,500,000,000	802	1,546,000	25 percent	28 percent	29 percent
2017	20,000,000,000	980	2,000,000	22 percent	60 percent	29 percent
Total	45,428,000,000					

Source: OK Bank

From the perspective of participating service providers, these alternative sources of inputs and lending, along with government-subsidized insurance, were "sub-par," and viewed as less likely to contribute to improving the livelihoods of smallholder corn farmers, their yields, and ability to withstand harvest failures. Specifically, they noted that government-subsidized insurance was dependent on ongoing government funding for agriculture support programmes and government-provided seed was of a lower quality seed than what was made available through the programme. The alternative sources of credit and corn inputs nevertheless provided a credible alternative for farmers and realistic competition to the Bank model previously supported by AgriFin Mobile.

Bank Mandiri Model

Bank Mandiri, of which the Government of Indonesia owns a 60 percent stake, independently developed an agent banking strategy in 2014. The strategy centres on recruiting local agents to serve as the point of financial service delivery in lieu of bank branches. Locally placed agents provide services and customers access their accounts via mobile technology, yielding a low-cost distribution channel to increase financial inclusion and account ownership.

Bank Mandiri identified smallholder farmers in the Malang district of East Java as an area with market potential, but in subsequent interviews indicated that it lacked the resources and capacity to contact farmer groups and recruit agents in the region on its own. In this regard, Mercy Corps served as a vital partner for facilitating expansion and market entry. During field interviews conducted in Malang district, Bank Mandiri bank staff positively described Mercy Corps' role in helping to gain access to rural communities through community leaders such as lead farmers. Bank Mandiri's expansion thus hinged on

Mercy Corps, which could leverage both capacity and a presence in the region. Mercy Corp served as the recruiter and trainer of the agent farmers, equipping them with the hardware, soft skills, and collateral to launch and grow their agent banking presence. The AgriFin Mobile activities focused on 15 villages in Malang, as well as three other areas later in the project. Mercy Corps' role included not only equipping the agents with 2-in-1 netbooks and WiFi modems, but also training the agents on the technology. Mercy Corps also provided grant funds to all the agents for training, socialization, and service promotion.

The AgriFin Mobile project contributed to the registration of 5,575 farmers as Mandiri e-Cash customers, 3,805 of whom became active users and 60 percent of whom are female.

Qualitative interviews with Bank Mandiri agents, as well as with farmers using their services, indicate the financial services products—especially the savings products—continued to be perceived positively. Internal Mandiri data on agent activity and transactions document use of the service and success of agents. Of the 15 villages implementing pilot projects, Kanigoro Village has the highest proportion of e-cash customers and active e-cash users.

In interviews and focus groups, both agents and farmers routinely expressed satisfaction with the e-cash platform, specifically, but did suggest that the transaction limits of 5M IDR is restrictive for some farmers seeking to cash in greater amounts. Agents reported different predominant use cases by men and women, but the gender differences cited were not consistent across the agents. Overall, cash deposits were the dominant transaction type, indicating the ability to save and store value digitally is the most valued financial service by the farmers.

Table 2. Cash Deposits (Setor Tunai) was the most common use for the e-Cash system

No	Desa	Setor Tunai	Tarik Tunai	Top Up E-Cash	Transfer	Other	# USSD Menu
1	Brongkal	202	10	91	214	52	357
2	Banjarejo	114	11	75	78	32	185
3	Balearjo	31	0	11	57	0	68
4	Suwaru	249	11	72	141	17	230
5	Karangsuko	124	1	45	133	21	199
6	Sidorejo	196	5	41	87	13	141
7	Pagelaran	123	26	8	24	2	34
8	Clumprit	252	8	1	2	0	3
9	Kademangan	366	7	39	350	21	410
10	Kanigoro	1207	386	50	684	43	777
11	Jatirejoyoso	118	9	0	85	0	85
12	Gambiran	46	1	0	2	0	2
13	Sumberejo	148	9	35	3	0	38
14	Jenggolo	488	61	25	72	13	110
15	Lumbangsari	141	0	0	0	0	0
	TOTAL	3805	545	493	1932	214	2639

Demographic Factors

Agents reported that some older farmers struggled to understand how to use the mobile technology while younger people, though adept at mobile technology itself, lacked the income to be regular financial services users. Women and men, however, appear equally empowered to utilize the available financial services, based on interviews and data showing women account for 60 percent of the registered and active users. Gender dynamics and nuances around how they were incorporated into the programme are further discussed in an upcoming section.

Local Context: State Regulation

As a state-owned bank, Bank Mandiri is subject to the directives of the government. In February 2019, the government required that the state-owned banks and Telekomsel, the state-owned telecommunications company, offer mobile payment services through a single payment platform, Linkaja. The Linkaja payment system is based on the QR code and managed by a separately created entity, PT Fintek Karya Nusantara. As part of the transition, Bank Mandiri was required to cease operating its e-cash platform, which provided access to financial services on the mobile device used by the agents and farmers in the AgriFin Mobile project.

In qualitative interviews with Bank Mandiri agents, recruited through the AgriFin Mobile project, this transition has directly affected service delivery. Specifically, agents expressed their frustration over the new system being slow to show and reconcile agent commissions, and that it can only be accessed through a web portal that is difficult to navigate. Additionally, in interviews with farmers using the Bank Mandiri service, farmers expressed concern that they no longer receive push notifications of account activity, such as confirmation of cash-in deposits, which was a feature of the e-cash platform.

While representatives of Bank Mandiri indicated they would still support existing e-cash accounts, at least one agent revealed that e-cash accounts had been frozen, and that customers were unable to access their funds. The Linkaja platform is app-based, while the e-cash platform could also use USSD codes,[2] allowing feature phone access to financial services.

The introduction of the Linkaja platform also requires an adjustment to the approach in activating new banking customers for Bank Mandiri which make the entry point a bank account rather than a transaction mobile wallet. The impact of this transition remains unknown but is likely to minimize the impact of AgriFin Mobile's investments to date in these regions.

AgriFin Mobile as a Hub

Variation across business models and context means that relative efficiency also varies. In Indonesia, for example, the Agriculture Finance Model coordinated a complex multi-stakeholder partnership between firms that had limited to no history of collaboration amongst themselves. Mercy Corps' role as convening and facilitating party was instrumental to private sector actors overcoming institutional barriers to entry into new markets and to managing the time and complexity of structuring a bundled service offering through a collaborative business model.

Qualitative interviews with stakeholders underscored the value of this role. Respondents from across the private sector spectrum routinely cited the role of the primary Mercy Corps contact as one of the deciding factors for the success of the business model. By facilitating conversations across various sectors and businesses, providing information on key customer groups, serving as the entry point to ensure successful market penetration, and brokering community engagement, Mercy Corps involvement created the conditions for the model to be viable.

[2] Unstructured Supplementary Service Data codes, or "quick codes" that access menu options on even basic feature phones.

The Agricultural Finance Model was structured in annual phases that reflected the single crop cycle per annum for corn production in the region. The primary service provider partners in the business model—with the exception of eight villages that operated more as a vendor to Mercy Corps—expressed a strong interest in continuing to use the business model to reach additional corn farmers in the region. They indicated in informational interviews that they are actively seeking opportunities to replicate the model in other regions and agriculture sectors in Indonesia.

2.4 Gender

Internal Mercy Corps documents underscore the need to address gender issues and promote the role of women in household decision making and economic empowerment. A gender review of the AgriFin Mobile programme highlights the fact that both Indonesian business models were developed with some prioritization of reducing gender inequality. For the Agricultural Finance Model, Mercy Corps' Building Resilience through the Integration of Gender and Empowerment (BRIGE) programme was used to assess the programme design to ensure gender dynamics were addressed. For the Bank Mandiri model, the Gender Review created as an annex to the 2018 AgriFin Mobile Report proposed additional strategies for ensuring the Bank Mandiri model incorporated economically viable strategies focused on cultivating women as a customer base.

Mercy Corps helped identify potential agents and build farmer capacity with financial services. During the project, Bank Mandiri was able to establish 15 agent locations. Seven of the agents included women leaders active in the farming groups. The project also had a specific outreach strategy to recruit women agents and customers that proved successful.

The qualitative field interviews conducted in Malang indicated women and men are equally empowered to use financial services. Certain gender dynamics did persist, however, such as the preference for female users to engage with female banking agents. This aspect of the programme, however, appeared to be part of a broader strategy of encouraging women to engage in the service while empowering female agents to expand their roles as leaders in the community. The following table illustrates the gender split that favours female users within the Bank Mandiri e-Cash platform. This split is evident both in terms of total as well as active users.

Table 3. Women are more likely use digital financial products in Indonesia

No	Nama Desa	# Users	Male	Female	# Active Users	Male	Female
1	Brongkal	**202**	76	126	**202**	76	126
2	Banjarejo	**213**	117	96	**114**	70	44
3	Balearjo	**211**	110	101	**31**	23	8
4	Suwaru	**269**	75	194	**249**	92	157
5	Karangsuko	**248**	102	146	**124**	37	87
6	Sidorejo	**348**	139	209	**196**	36	160
7	Pagelaran	**148**	42	106	**123**	12	111
8	Clumprit	**801**	367	434	**252**	61	191
9	Kademangan	**515**	254	261	**366**	168	198
10	Kanigoro	**1209**	390	819	**1207**	379	828
11	Jatirejoyoso	**201**	96	105	**118**	61	57
12	Gambiran	**201**	90	111	**46**	30	16
13	Sumberejo	**199**	141	58	**148**	69	79
14	Jenggolo	**514**	127	387	**488**	373	115
15	Lumbangsari	**296**	69	227	**141**	22	119
Total		**5.575**	**2.195**	**3.380**	**3.805**	**1.509**	**2.296**

While the data is encouraging, there is still some uncertainty about the degree to which such efforts will be continued without Mercy Corps' guidance and involvement. Interviews with key private sector stakeholders of the Agriculture Finance Model suggested that while ensuring female take up of loans was an important part of the business, there did not appear to be any distinct strategies for targeting women or tailoring loans to address gender dynamics. Furthermore, given that much of the motivation among stakeholders across both Indonesian business models is driven by individuals, there is also the risk that such priorities could fall away as staff changes or business strategies evolve.

2.5 Prospects for Models After AgriFin Mobile's Conclusion

The long-term viability of both business models in Indonesia are at risk due to external factors of government regulation and oversight. The Financial Services Authority of Indonesia—Otoritas Jasa Keuangan (OJK)—regulates and licenses banks including BPR and Bank Mandiri. Each bank faced directives from OJK in the last year of the AgriFin Mobile project, or shortly thereafter, that will likely impinge on programme sustainability—but the overall impact is indeterminate as of yet.

In the case of the Agriculture Finance Model for corn farmers, BPR is the sole retail lender to participating corn farmers. In the fourth phase of the project, OJK grew concerned over the rate of non-performing loans (i.e. defaults) issued by BPR under the business model. Interviews with stakeholders revealed differing perspectives as to why default rates were rising. Some attributed defaults to legacy loans that were issued prior to the inclusion of the bundled insurance that repaid the loan in the event of harvest failure. Others attributed the situation to farmers borrowing from multiple sources, including high cost loans from predatory lenders, and prioritizing payment of those loans with crop proceeds over the BPR loan. Still others attributed the defaults to grain traders engaged in the model to provide repayment from harvest purchases to failing to actually provide repayment.

In interviews, BPR officials indicated that it is continuing efforts on both collection and working with the regulator to continue to enable lending. In addition, the service providers offering bundled services including Syngenta and ACA indicated they are evaluating how to create a closed loop in which loan payments must be made by the grain traders, thereby eliminating the possibility for diversion of funds. The key stakeholders interviewed—Syngenta, OK Bank and ACA—all indicated they are prepared to continue with the model, provided BPR is willing and able to proceed.

OK Bank, as the wholesale lender to the bank, has board approval to provide its highest level of funding, 20B IDR, but funds can only be provided when BPR is permitted by OJK to lend under the model. An agreement would need to be reached and an MOU signed by all parties by August 2019 to provide financing to corn farmers for the 2019 planting cycle.

Another threat to sustainability to the Agriculture Finance Model for Corn Farmers is stakeholder coordination. Mercy Corps had fulfilled this role and appeared to drive individual partners to renew their commitments each year. The partners' current practice of committing to each annual phase through signing of single-year MOUs creates risk of non-renewal. Mercy Corps played a coordinating and advisory role with each party, allowing them to each pursue their commercial interests but in an ecosystem approach. Without a designated party championing that role it is unclear how the partners will manage their individual and collective commercial expectations. In addition, the stakeholder representatives appear to be key individuals to the process thus far, so their transition could impact institutional commitment to continue the business model.

While the specific business model for corn farmers faces questions on sustainability, there is an indication that the bundled service model is one that the parties may seek to replicate in other sectors and geographies. For example, an initiative by the Asia Development Bank for Leveraging Information Communication Technology (ICT) for Irrigated Agricultural Extension references the AgriFin Mobile project as an example of approaches to mobile-enabled delivery of extension services. In addition, IFAD's Integrated Participatory Development and Management of the Irrigation Sector Project in Indonesia is working in 2019 to implement financial access activities that offer coordinated partnerships between agribusiness service providers and financial institutions that leverage extension services, input supply, and financing.

In interviews with Syngenta, ACA and OK Bank officials, respondents indicated an interest in extending their model, with Mercy Corps' participation, to this larger-scale effort. These subsequent projects provided an opportunity to refine and test the model of multi-stakeholder collaboration and to develop a sustainable structure for service delivery that produces overall returns for each stakeholder without ongoing subsidies from donor funding.

Bank Mandiri, for its part, will continue to push its agent banking strategy and mobile phone account access to reach underserved markets, including farmers. Regional offices of Bank Mandiri are now required to report agent banking performance as part of their key performance indicators tracked by the bank's board of directors. As a state-owned bank, Bank Mandiri also carries a strong mandate to help the government improve levels of financial inclusion and financial access. In addition, the model of using a third party "empowerment agent" who knows the community to identify additional agents and build capacity for use of financial services has been endorsed by the bank's board of directors.

The largest threat to sustainability of the Bank Mandiri model is the government's mandate to use a shared platform rather than let Bank Mandiri use its own internally developed systems that it can control and adapt. There is speculation that the government created Linkaja in response to the rapid growth and consumer adoption of fintech payment platforms that are performing well, including Go-Pay (a mobile wallet integrated with Go-Jek's ride-hailing app) and Ovo (whose mobile wallet is integrated into ride-hailing platform Grab and that offers discounts on purchases).

2.6 Summary

Mercy Corps' efforts in Indonesia to establish and facilitate a multi-stakeholder consortium represents an ambitious feat. Not only was the programme able to make a viable case to private sector actors around the gains and benefits to market coordination, it was also able to create a test case model for aggregating a customer base from smallholder farmers and introducing them to new financial products such as insurance and agent banking. This required not only a substantial understanding of the barriers facing smallholder farmers, but also leveraging of networks and social capital to identify and convene key stakeholders that would see the project through.

It is not surprising then that one of the most salient threats to the future of the business models is the cessation of Mercy Corps' involvement as a convener and facilitator. While the level of effort and complexity expended to create and maintain the framework to execute the business model is clear, it is not clear that the same level of effort was expended in ensuring future viability. Unlike parallel models in Uganda and Zimbabwe, the Agriculture Finance Model was not simply the ongoing support of an organization, but the creation of a collaborative economic initiative that would achieve economic viability by cultivating an untapped customer base of smallholder farmers. As a result, even with formalized agreements, the business model runs a strong risk of failure as partners must justify not only the business case, but the efforts around coordination, and must learn to work closely together.

On the other hand, the major threats to the Bank Mandiri e-Cash model arise not from private sector partners or collaborators, but instead from regulatory and political factors. Government mandates to merge existing platforms are generally not a common threat but are the reality within Indonesia. As the transition occurs, it endangers the existing customer base as well as the strategies for maintaining original AgriFin Mobile goals. How smallholder farmer beneficiaries are affected overall is still uncertain; however, it is very likely that the ambiguity created in this period will reduce overall effectiveness of the project.

3.0 UGANDA

3.1 Background

Uganda is arguably most representative of the fluidity that characterizes AgriFin Mobile as a project. As noted before, this same fluidity can be both an advantage and a handicap, and so it is for the Uganda case study.

On the one hand, for example, there was no clear rubric nor criteria, whether technical or theoretical, by which private sector actors were assessed for participation and partnership. There was similarly no clear calculation behind the extent of financial support given to partners, and indeed amounts varied. Another result is that several former AgriFin Mobile private sector partners are not included in this evaluation, as either their participation, or product, proved unsustainable at an early stage and they are no longer considered AgriFin beneficiaries. AgriFin Mobile implementation in Uganda, in sum, appeared ad hoc and disjointed.

On the other hand, the local Mercy Corps office was able to isolate two local champions, both of which were unlikely to have encountered Mercy Corps through more formal procurement or proposal processes. Mercy Corps' support to these champions—which included targeted financial support as well as more informal mentoring—was critical to each entity in overcoming "valley of death"-type investment needs in key platforms and processes. Furthermore, Mercy Corps' support helped establish both entities on sound footing so that both, while still facing challenges, are growing and serving smallholder farmers using digital communication technologies.

3.2 The Uganda Business Models: Small, Creative and Committed

TruTrade: An Agent-Based Model with Progressive Growth

In Uganda, TruTrade's core business is to provide smallholder farmers—traditionally producing crops in less organized value chains—with a more direct link to viable markets and better prices. By attempting to narrow the degree of separation between buyers and farmers, TruTrade is attempting to offer both transparency to the buyer and better prices for farmers. TruTrade continues to implement this business model and is actively growing its network of field agents, who register and source produce from farmers in the agricultural zones.

Central to its operations, TruTrade employs the locally based buying agents, equipping them with a proprietary mobile application to record and track sales and buys, as well as pay sellers, using mobile money. While not a bundled service, and with relatively limited scale or reach compared to private sector partners in other countries, TruTrade is a private sector actor that is leveraging digital technologies to directly benefit rural, smallholder farmers through a straightforward, transactional or market-based exchange.

Based on information collected during interviews with TruTrade leadership and key implementers, the organization claims to serve over 4,000 farmers through its platform, employ 71 active agents, and engage 15 buyers. TruTrade's first growing season in 2019 saw 4.5 times more volume of products purchased than during the same season the previous year. While this growth cannot be directly attributed to AgriFin Mobile and its investments, the project provided targeted funding at key junctures in time for investments in TruTrade's mobile-enabled technology platform that allowed it to grow and increase operational effectiveness in the short term.

TruTrade's platform (dubbed "WeSource"), when operating smoothly, provides more efficient farmer data collection and streamlined payments using mobile money. Interviews with TruTrade leadership made clear that, while not without its hiccups (discussed in more detail below), these investments were critical to speeding up the development of WeSource. Central to TruTrade's business activities, WeSource was modified to be more streamlined and user-friendly in the field, and thus deployable sooner and more effectively.[3]

TruTrade is designed to address—and based on field-level observations, appears to be meeting—a market need of smallholder farmers. During focus group discussions with farmers in the Dokolo District of Uganda,[4] where TruTrade is present and actively buying agricultural produce (chia seed in particular) from farmers, respondents indicated that before the arrival of TruTrade and the establishment of a locally based, trained agent, they lacked both regular access to markets and guidance on which crops were suitable and in demand.

The same farmers reported limited options for selling their produce, high transportation costs to bring their crops to market (focus groups, notably, were conducted two hours from a paved road) and sales to middlemen at lower prices. TruTrade is directly targeting these same farmers through a purely market-based relationship that, thus far, appears to serve both parties well.

Ensibuuko: SACCO Services Software, Serving Rural and Urban Clients Both

Also in Uganda, Ensibuuko has created a niche business to business (B2B) product, serving primarily savings and credit cooperative organizations (SAACOs). SAACOs provide savings and credit to financially underserved populations, including SHFs, but not exclusively. Indeed, Ensibuuko is broadening its reach to urban clientele, and estimates 35 percent of their clients are exclusively involved in serving the agricultural sector. Ensibuuko's core product is a technology management and information software ("MOBIS") designed to help SAACOs better serve their members by storing digitized, easily accessed records on the cloud.

[3] Causal Design and Strategic Impact Advisors (SIA) jointly interviewed TruTrade leadership (its Systems Manager and Country Lead) on May 20th, at the TruTrade offices in Kampala, and again with its CEO on May 24th, also in Kampala.

[4] Okwaloa Mogo, Dokolo, Uganda (May 21, 2019). There were approximately 25 farmers in attendance, including 10 active TruTrade farmers participating.

Ensibuuko began as an agricultural-focused organization, winning its first small tranche of funding in an ICT4Ag hackathon. While its core product offering is not necessarily an agricultural solution only, it can better serve smallholders by strengthening the financial management abilities of SAACOs, which are key to providing financial services throughout Uganda.

While agricultural SAACOs have been central to Ensibuuko's growth strategy, the company has since targeted SAACOs serving urban customers as well in order to reach scale. Of note, AgriFin Mobile leadership in Uganda resisted this evolution, wary that such "distractions" may lead one of the programme's champions away from serving the intended agricultural base. This is discussed more elsewhere, but is noted as a tension that existed, mostly at low levels, between programme objectives and the independent or internally determined business needs and opportunities of private sector partners.

Nevertheless, Mercy Corps investments appear to have had a direct bearing on overall effectiveness of Ensibuuko activities and its growth. In interviews with Ensibuuko leadership,[5] respondents were adamant that Mercy Corps investments and mentorship were both timely and crucial, and in many ways were fundamental to the company establishing itself and building a customer base. MOBIS customers were also happy—Interviews with MOBIS users Gulu Agricultural Development Company (GADC)[6] and the Ntinda Entrepreneurs Cooperative (NEC)[7] revealed broad satisfaction with the product, services and support.

GADC finance staff reported their satisfaction with MOBIS, stemming in part from their access to a dedicated customer service agent to whom they direct their questions and who helps them troubleshoot issues. GADC staff also reported satisfaction with the platform's flexibility to set repayment schedules according to the specific needs of the loan. If loans are linked to seasonal agricultural activities, for example, repayment schedules are typically pegged to harvest. When loans are tied to other income-generating activities that are less seasonal, repayment is monthly. GADC has issued slightly under USD 17,000 in asset financing using MOBIS, which represents only 31 percent of the total fund.

GADC indicated the MOBIS system has enabled and accelerated its ability to underwrite and track loans, and that MOBIS has little influence to overcome the barriers to providing a greater volume of loans. The primary barriers cited were differing levels of demand depending on crop cycles, a lack of member interest in asset financing, and a lack of quality information on credit worthiness (something that a platform like MOBIS can indeed help provide over time). GADC stated it does offer the asset financing product to members without MOBIS, but the processes are very slow, and tracking loans via excel makes it harder to manage.[8]

An NEC representative interviewed for this evaluation attributed part of its strong membership growth to the MOBIS platform, as it made managing its members easier. When it began using MOBIS in 2016, NEC only had 50 members, but that number has since grown to 600. While its membership and deposits

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[5] Kampala, Uganda (May 20, 2019)

[6] Gulu Agricultural Development Company (GADC) is an agricultural cooperative operating in the Northern Region of Uganda that deals mostly in cotton, but also is active in sesame, chili, sunflower, sorghum, and other agriculture products. It has three branches where it sources and processes crops from GADC members. GADC is not a deposit taking institution but moved into lending with support from GIZ. It selected the Ensibuuko's MOBIS system to register and analyse the loan applicants and track loan distributions and repayment schedules. IGADC partnered with a GIZ funded programme seeking to deliver asset financing loans to GADC's approximately 69,000 members. These loans were targeted to farmers with use of funds tied to acquiring access to agricultural assets such as ox ploughs, motorcycles, precision planters, labour, and financing other farming needs. GADC has issued 502 loans to its members using the MOBIS system to register and analyse the loan applicants and track loan distributions and repayment schedules. The loans carry a below market, fixed interest rate of 3 percent per annum. This rate reflects the fact the entire portfolio is subsidized and funded by GIZ and raises a question about continued lending without donor funding. Such a low interest rate may hurt the sustainability of the loan book long term, but Ensibuuko does not provide input into the interest rates of its clients.

[7] Based in the Ntinda district of Kampala, This SAACO does provide its members both savings accounts (deposit taking) and credit products. The SAACO's 600 members are almost entirely retail shop owners and have very limited engagement with agriculture. While NEC doesn't serve smallholders, interviews on its use of the Ensibuuko platform provided insights into how MOBIS helped it smooth transactions and improve the trust of members.

[8] All GADC observations are based on interviews with GADC leadership in Gulu, Uganda on May 22, 2019, at their offices on the compound of the Gulu Cotton Company, Ltd.

have grown, NEC's loan portfolio is not performing well with 30 percent at risk of default, recently down from 40 percent. NEC attributes the drop in Portfolio at Risk (PAR) mostly to an increased presence of field officers meeting with members when their repayment dates approached. NEC did, however, cite the MOBIS platform's inability to track and limit the number of loans one guarantor could back as an operational handicap that inhibits its due diligence processes.[9]

In all, interviews with Ensibuuko and its end users reveal a small but growing operation with a functioning, revenue-generating product. This is at least partly, if not substantially, the result of Mercy Corps investments, mentoring and partnership.

3.3 Emergent Themes and Experiences from Uganda

Project Aims Versus Private Sector Needs

In Uganda, each local partner—Ensibuuko and TruTrade—already had distinct business models that targeted rural, smallholder farmers (or in the case of Ensibuuko, their SACCOs), and were thus complementary to some of AgriFin Mobile's core project goals. Each organization has field agents who are in regular touch with their clientele and respond to issues that arise. TruTrade's trained agents are peers/colleagues of the potential sellers and are based in the villages where they work. While not as locally grounded, Ensibuuko assigns technicians to visit its clients and troubleshoot glitches. Ensibuuko and TruTrade's approaches to address these issues at the farm level ensured their work remained relevant to overall AgriFin Mobile goals.

Mercy Corps' role was therefore *not* to push changes to the models, but to facilitate technological upgrades and provide a level of mentoring and business support, including the identification of potential customers. This more behind-the-scenes approach allowed both TruTrade and Ensibuuko to remain more project-relevant than if Mercy Corps had insisted on operational changes.

With this acknowledged, however, Mercy Corps was more proactive when, as in the case of Ensibuuko's increased marketing and outreach to urban SACCOs, it felt it needed to "steer" its partner's focus back to smallholder farmers. There is room for debate as to whether directing a private, for-profit entity away from a potentially suitable client base might inhibit its sustainability. What this demonstrates is that Mercy Corps personnel remained vigilant to project risks, and remained committed to using AgriFin resources, even if behind-the-scenes, to maximize its impact among its target population. As Ensibuuko has demonstrated with its work with NEC, it ultimately retained the independence to work with urban clients, while still serving its rural base well.

Finally, gender was largely overlooked by partners and implementers, at least in any substantive or binding manner. This is explicated in more depth in its own section, below, but is one core project area in which all parties were largely passive, and thus where there is little to show after the project's conclusion separate of isolated, individual "success stories."

Trust and Proximity

"Trust and proximity" is a theme that in fact cuts across all cases and will be referenced again in the overall project evaluation chapter, but which was especially salient in Uganda. The TruTrade agent-

[9] NEC observations are based on an interview with its director, at NEC's head branch office in Kampala on May 23, 2019.

delivery model provides, for example, a known community member, the agent, who offers advice on high-demand crops, as advised by TruTrade supervisors and a nearby buyer. Focus group respondents, illustratively, reported that they converted cultivable land to chia seed production as a direct result of TruTrade sourcing an established buyer for the produce, combined with the presence of a locally based agent/buyer who purveyed advice to cultivate chia.[10]

The presence of a local agent/buyer was crucial to reassuring farmers they could sell the chia seed they produced. Previous experience with vanilla bean production, which was pushed by foreign buyers and international donors, and which resulted in huge surpluses and losses, has created a culture of distrust and anxiety among farmers. While they have been able to sell their chia seeds to TruTrade recently, there remain concerns among farmers that prices for this crop will also drop, resulting in a loss of their investment.

While this concern was articulated in focus group discussions, the TruTrade agent's presence was still seen as hugely valuable. Most farmers stated that they trusted the TruTrade agent to keep them informed on the chia seed market, and to relay prices. In sum, much of what made the TruTrade model successful, independent of the technology involved, was consistent, human-to-human relations. In fact, this same human-to-human interaction was requisite to build trust in mobile money, itself.

Under the Ensibuuko model, human-to-human interactions were also critical to SACCOS employing MOBIS, and likewise between borrowers and SACCOS themselves. For example, in interviews with an NEC official, he indicated that trust levels among clients improved as a result of MOBIS by streamlining interactions with the bank tellers, particularly around withdrawing funds.[11]

Bundled Services / RAS: Starting Point or End Point?

Unlike the other cases, in Uganda the bundling of rural agricultural services was neither accomplished, nor a central part of the programming. This partly stemmed from the ad hoc nature of finding credible and viable local partners and working within their existing capacities. The primary reason multiple services were not bundled into a single offering by the business models in Uganda was the fact that these are smaller companies that were still working on establishing a viable core product offering. A bundling of services in their case would likely have spread resources too thin and taken the requisite amount of focus off their primary product offering too soon. However, as each company matures, they have independently experimented with bundling, and in line with their core products (i.e., bundling of services that complement their core foci). This may suggest that more hands-off, investor-like support, as Mercy Corps demonstrated in Uganda, may be more beneficial over the long-term, versus driving an agenda from the beginning.

TruTrade's core product is to build market linkages, but it has started to experiment with bundling additional services. It has begun, for example, to arrange the provision of inputs, specifically seeds, for certain crops it is advising farmers to grow. TruTrade recognized on its own that partner farmers sometimes encounter shortages, or potentially prohibitively high prices, of these inputs. TruTrade arranged for bulk purchase and resale of seed to its farmers. They are also in early conversations with interactive voice recall (IVR) and SMS chatbot services to consider ways to offer RAS.

[10] Farmer FGD, Okwaloa Mogo, Dokolo, Uganda (May 21, 2019).
[11] Interview, Kampala (May 23, 2019).

To date, the input sourcing service has only been piloted. TruTrade is testing the revenue model to determine whether investing in inputs might tie up capital that could be used for trade finance facilitated on the market linkages platform. In addition to the input resale and RAS, TruTrade considered taking its platform, supported by AgriFin Mobile, and white labelling it as a software as a service (SAAS) model that could be sold to institutions interested in using the technology to purchase crops. This concept has yet to take off, as it requires significant time and focus to finalize the details surrounding the SAAS model. It also requires funding for marketing and backend system development. While bundling more products to diversify offerings and revenue streams is something TruTrade acknowledges is important, its current focus remains on the core product offering of linking buyers to farmers for the short term.[12]

Ensibuuko's MOBIS platform already has additional functions, while others are being re-launched. Neither have been utilized by the clients interviewed for this evaluation. GADC, for example, has yet to use other value-added services the MOBIS offers, including the SMS messaging system that could be used to send loan recipients messages reminding them of repayment. Nor does GADC use the mobile money wallet integration, formerly known as Chap, offered by the MOBIS service. The mobile money wallet integration is no longer called Chap, as Ensibuuko has decided to move away from using a third-party aggregator to facilitate the push and pull functions between SAACO member accounts and their mobile wallets. It is now working to directly integrate with MTN, the mobile money provider, however. This direct integration will reduce the transaction costs for Ensibuuko, who relaunched the product in July 2019.[13]

Technology Deployment: Its Strengths and Weaknesses

Data indicate that the TruTrade business model has improved farmer incomes. Farmers selling their products through the TruTrade platform have received 15-20 percent higher prices, on average, than had they traded with conventional buyers. TruTrade is confronting issues in reaching scale with its technology-dependent payments platform, however, which is key to its cost model. TruTrade requires all payments facilitated on its platform to occur digitally via mobile money. This has produced some barriers to entry (for example, if a farmer does not own a phone, or prefers cash) that make expansion more difficult.

While mobile money provides efficiencies for TruTrade and was an important part of the business model to be tested with AgriFin Mobile, friction often exists between rural populations and digital channels. Farmers in Dokolo, for instance, were quick to mention the difficulties they faced with mobile money. The primary challenge cited by end-users was to convert their digitally enabled payments to cash. There is a mobile money agent 7 km away from their community, but that agent, specifically, frequently runs out of cash. Other agents are 12-15 km away, requiring 30 minutes of travel on a motorcycle taxi at a cost of 20,000 Ugandan Shillings (roughly USD 5). In focus group discussions, farmers also cited delays in receiving payments, particularly during peak harvest season.[14] TruTrade attributed this to a requirement that payments be approved through a process at TruTrade's office in Kampala, which can thus be overlooked over weekends or late evenings.

[12] Based on both in-person and electronic communication with TruTrade over the course of May and June 2019.
[13] Based on both in-person and electronic communication with Ensibuuko over the course of May and June 2019.
[14] Farmer FGD, Okwaloa Mogo, Dokolo, Uganda (May 21, 2019).

My biggest competition... is cash... seriously.
-TruTrade area representative

A TruTrade area supervisor echoed these concerns, noting that her biggest competition to full implementation of the business model was farmers' preference for cash. TruTrade is often competing to source product from farmers with other buyers and middlemen in the market who offer to pay with cash, instantly, instead of mobile money.[15]

Though farmers were quick to mention these pain points with mobile money, they also recognized its value around safety. They specifically cited the safety of their agent, who in the absence of mobile money would have to manage and secure significant amounts of cash in an insecure environment (no locksafe, easily identified, far from police). It was also apparent that TruTrade's value to farmers manifested fairer prices, but there was a less quantitative value they referenced which came from the trust they had built with the agent (see discussion above). Across the AgriFin Mobile portfolio, there are different levers regarding human touch, technology, cost, and scale that influence the level of effectiveness each business model had on serving smallholder households.

Finally, working with an app-based technology that requires 3G network has also been a challenge. The network signal is routinely weak where agents are conducting transactions. As a result, the app includes an SMS-based failsafe should the transaction fail to be uploaded due to slow connection. While this alternative, low signal back up does work, it slows down the process of payment which delays payments to farmers. Connectivity is a constant challenge for TruTrade and other business models AgriFin Mobile supported, not only in Uganda.[16]

MOBIS customers also reported challenges with running a cloud-based software off an unreliable network (discussed more under 'Partnership,' below). This challenge is exacerbated in rural areas, which is precisely where AgriFin Mobile wants to reach. This report acknowledges, however, that enhancing infrastructure is outside the scope of AgriFin Mobile's capacity to address, though recognizing this persistent pain point is important, as much of what is being supported ultimately hinges on reliable networks.

Partnerships: Strategic Investment, Mentorship and Cross-Programme Collaboration

AgriFin Mobile's most beneficial support to TruTrade was direct funding for the development of its mobile app and continued improvements to their back-end web application. AgriFin Mobile's investments in TruTrade's platform development constituted 74 percent of its total spend on technology in 2016 and 32 percent in 2017. Over the last three years (2016-2018), AgriFin Mobile's investments represented 46 percent of total spend on platform development.

The timing of this investment, moreover, was critical for TruTrade, who needed a mobile app for its agents to capture data on purchases and trigger payments to farmers. TruTrade likened this investment to essential seed capital that helped establish technology as a cornerstone of their service offering.

[15] Interview and recurring conversations with TruTrade area supervisor, Dokolo, Uganda (May 21, 2019)
[16] Observations are based on working with the platform, with a field agent, in Okwaloa Mogo, Dokolo, Uganda (May 21, 2019).

AgriFin Mobile supported TruTrade in marketing and advocating for its product as well. This support included: 1) TruTrade's use of raw footage AgriFin developed to create TruTrade's own promotional videos, and 2) a platform for TruTrade to present at conferences and gain visibility to potential clients and investors. Providing the raw footage saved TruTrade both time and money in developing out promotional collateral. While the value of this is difficult to quantify, it is likely that the total cost of developing their own would have required an outlay of five to ten thousand dollars.[17] Speaking at conferences has helped TruTrade build its brand recognition in important circles, including among digital agricultural investors and donors to name a few. TruTrade continues to be invited to these events and indicates it has led to introductions to potential investors and sources of trade finance funding.

Table 4. IT Spending 2016-18

	2016	2017	2018	Totals	% Contribution
TruTrade	$ 11,109	$ 20,953	$ 16,594	$ 49,016	54
AgriFin Mobile Contribution	$ 31,917	$ 10,000	0	$ 41,917	46

Similarly, AgriFin Mobile's direct investments in Ensibuuko's technology development had the greatest benefit to the company's growth. Unlike TruTrade, Mercy Corps and Ensibuuko collaborated at a much earlier stage in Ensibuuko's corporate history and development. Mercy Corps began working with Ensibuuko, as part of AgriFin Mobile, in November 2014 by providing a grant of USD 35,000 to help Ensibuuko develop its prototype and subsequently pilot it with two SAACOs identified by Mercy Corps.

The original prototype was a stand-alone application, similar to a Microsoft Suite, which made providing technical support to the SAACOs very costly. Based on this experience, Ensibuuko converted its solution to a cloud-based platform for remote access. AgriFin Mobile supported this conversion, including covering 100 percent of the cost of the servers. These grants totalled approximately USD 120,000 over the life of the AgriFin Mobile project and provided crucial seed capital for Ensibuuko's development of the MOBIS platform. The CEO reflected, "without that foundational funding it would have been really difficult for us to survive". The initial investment gave the firm space to build and test its business model, determine ideal pricing models, and gain traction with customers that helped lead to additional funding.

AgriFin Mobile coordinated with other Mercy Corps programmes in Uganda to provide opportunities for TruTrade. The Driving Youth-led New Agribusiness and Microenterprise in Northern Uganda (DYNAMIC) programme worked with youth to seek and secure entry-level jobs and start or strengthen their businesses along agricultural value chains. AgriFin Mobile facilitated a partnership between TruTrade and DYNAMIC for TruTrade to stand up new operations and agent networks with younger entrepreneurs engaged through DYNAMIC.[18]

The aspiration was that this would help TruTrade break into a new market by lowering the costs around agent hiring, training, and farmer onboarding. The result of this partnership was less impactful in the long run as retention of the younger agents from the DYNAMIC programme was difficult. There was a high rate of turnover that ultimately resulted in TruTrade incurring more costs than normal. TruTrade also cited stark differences in the funding restrictions on a programme like DYNAMIC versus the flexibility

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17 This figure is based on SIA's own experiences with hiring media companies in Uganda.

18 Based on feedback from former AgriFin Mobile leadership (Skype; May 15, 2019) and communication with TruTrade (recurring, over May 2019).

in the use of funds coming from AgriFin Mobile. In the end, the return on investment for this partnership arranged by AgriFin was low for TruTrade.

Cross programme partnerships can be useful if there is greater alignment with the programme's overall development goals and TruTrade's commercial interests. While working with DYNAMIC was not successful, TruTrade provided an example of a partnership with a programme called NuTech, which took a business-first approach to the partnership. The partnership between NuTech and TruTrade was more focused on trade volume outputs rather than activities and youth engagement. This was more directly in line with TruTrade's value proposition and revenue generating activities and permitted entry into a new market that was more aligned with the goals of each of the partners. Challenges around reporting and budget constraints still existed, but the partnership was more fruitful as both NuTech and TruTrade focused on the trade volume itself, versus the activities that resulted from that trade volume.

AgriFin Mobile also facilitated relationships with mobile network operators (MNOs) in Uganda that served two key roles for Ensibuuko's growth. First, cloud-based services require a reliable network connection, which proved non-existent and a major barrier early on. Mercy Corps provided Ensibuuko contacts to Airtel, a major MNO. With this contact, Ensibuuko negotiated cheaper and better connections for their SAACO's call access point networks (APN). This provided a cleaner network signal for Ensibuuko's clients at an affordable monthly price of around eight US dollars.[19] Secondly, Ensibuuko leveraged the relationships established with the MNOs to integrate its platform with the mobile money wallets, allowing SAACO members to push and pull funds between their savings accounts and mobile money wallets.

AgriFin Mobile also played a crucial role in building Ensibuuko's marketing and customer acquisition strategy. AgriFin Mobile funded a marketing firm to advise Ensibuuko on marketing strategies for its product. Those strategies continue to be used by Ensibuuko. One strategy was to conduct workshops with SAACOs to review the different functionalities of the Ensibuuko platform. Some of the early workshops were funded by AgriFin Mobile and helped Ensibuuko to land its first 15 customers. By providing support around customer acquisition activities, AgriFin Mobile helped Ensibuuko cut costs for that part of their business, allowing them to advance their product development and operations further.

AgriFin Mobile's support was nearly always aligned with Ensibuuko's development pipeline, but like all funding— be it from grants, debt, or venture capital—there were some difficulties for Ensibuuko to fit within the broader AgriFin Mobile construct. Towards the end of the project, Ensibuuko noted a shift in AgriFin Mobile's pressure to deliver numbers for reporting purposes. It perceived reporting requirements as time-consuming, burdensome, and overall detracting from more growth-focused business activities. While a wider narrative for growth was maintained, Mercy Corps would at times question Ensibuuko when they pursued SAACOs that were not smallholder farmer focused.

An example of this was the acquisition of a police SAACO, which was an ideal client for Ensibuuko from a business perspective (close to Kampala with multiple branches, for example), but not necessarily for AgriFin Mobile's project objectives. Beyond the heavy demand on reporting, and some friction between the new customers Ensibuuko was targeting and the desired customers for AgriFin Mobile, the support both via direct technology investment and customer acquisition support given by AgriFin Mobile was integral to the survival and growth of Ensibuuko.[20]

[19] A dedicated satellite connection can otherwise cost between USD 100-200 or more.
[20] These observations stem from multiple interviews with both AgriFin Mobile leadership as well as Ensibuuko leadership and follow-up communication.

3.4 Gender

Despite the centrality of gender inclusion and empowerment within AgriFin Mobile's desired outcomes, the topic had very little bearing on either business practices, nor even AgriFin Mobile activities and benchmarks. Women were not excluded, at least not intentionally, as women occupied leadership positions in each Ensibuuko and TruTrade. There was also an assumption (albeit poorly articulated) that because women farmers constituted most smallholder farmers, activities and effective programming would trickle down, and benefit women even without gender-sensitive programming or activities. Qualitatively, at least, this did not appear to hold true.

TruTrade leadership, for example, acknowledged that, even if they were able to recruit and train relatively large numbers of women as agents, they were unable to retain them. At any one point, approximately 20 percent of its agents are women, while turnover remains very high. In an interview, one key leader of TruTrade openly wondered if they were actually *disadvantaging* female farmers, given the common occurrence of registering the cell phone numbers of men on its WeSource platform as the designated payee.[21] A female TruTrade area supervisor, meanwhile, revelled in her position, but acknowledged as well that she was sometimes threatened by male sellers and, in a more illustrative example of what inhibits women's equal participation, noted that, "doing what I'm doing... I'm actually bringing shame upon my family." She reports not visiting her family when her work brings her to nearby villages, in order to avoid the beratement.[22]

In another illustrative example of the limitations of a programme that does not actively mainstream gender inclusion, a key Ensibuuko representative noted that, while they saw themselves "in alignment" with Mercy Corps gender inclusion objectives, gender inclusion (outside of recording sex disaggregated data) "is out of our control," likening it to an environmental factor beyond their ability to influence.[23] GADC officials, similarly, observed that women were both the majority of area smallholder farmers and consistently the best performers with respect to loan repayment, but that men constituted 70 percent of loans, with no reason given for the discrepancy.[24]

Gender topics were raised in meetings, according to interviews, but reporting requirements were otherwise lax and specific activities—or revisions to them that would better target barriers to inclusivity—were never seriously considered, and certainly never implemented. In this regard, AgriFin Mobile did not fulfil its obligations to enhance the wellbeing of female smallholder farmers.

3.5 The Performance of AgriFin Mobile Partners Since Programme End

While TruTrade has been highly effective in serving smallholder demand for better pricing and a more convenient means of selling their crops, it has yet to reach a scale that ensures the viability of the service outside of grants and venture capital funding. Currently, TruTrade's commission revenue generated from the core service offering covers only 12 percent of its total operating costs. The remaining costs are covered by grants (10 percent) and venture capital investments (78 percent). Sustainability for TruTrade will only come with greater scale in the crop volumes it sources, and transactions processed. This requires expanding both its buyer and farmer pools.

[21] Interview. Kampala, Uganda (May 24, 2019).
[22] Interview/conversations. Dokolo, Uganda (May 21, 2019).
[23] Interview. Kampala, Uganda (May 20, 2019).
[24] Interview. Gulu, Uganda (May 22, 2019).

As noted previously, currently TruTrade works with 15 buyers and has 71 active agents across the country. While there are 4,000 farmers on the platform, only a quarter of those are currently active.[25] TruTrade, based on interviews with leadership, is keenly aware of the scale it needs to attain for it to break even in Uganda, and its second market, Kenya. At the moment, TruTrade is not yet profitable but has shown impressive growth during their first large season of 2018-2019, spanning from December to May. During the same time period last year, TruTrade brought in 149MT and this year they sourced 4.5 times that, bringing in a total of 672 MT. They hope to continue this growth into their primary season starting in July and going through November.

TruTrade estimates that it will reach a breakeven point by 2021 in Uganda, and 2022 in Kenya. To do this, TruTrade estimates it needs to collect nearly thirteen times what it sourced in 2018, reaching 9000 MT of product at an estimated worth of USD 6 million. Reaching the type of scale TruTrade needs to break even will require bringing in more buyers and deploying 220 additional agents. Currently the average farmer delivers 365 kilograms of produce in the year, which means, at that current average volume, reaching 9,000 MT would require 24,000 farmers. The primary barriers to growth for TruTrade now are finding interested buyers and competition with buyers who may not offer better prices but do offer cash payments. Overcoming this competition will rely heavily on the quality of buyers TruTrade can facilitate, which will translate into better prices for its farmers. TruTrade's platform offers buyers a level of transparency that is difficult to find in less organized value chains. As the platform continues to grow and TruTrade develops more in-depth analytical capabilities, it will begin to offer buyers additional levels of transparency and insight that may help TruTrade expand to where it needs to reach the breakeven point. TruTrade is seeking buyers that prioritize transparency and are willing to pay a premium for that, which will enable them to monetize the WeSource platform.

Ensibuuko, for its part, currently works with a total of 50 SAACOs (six of which are being onboarded as of June 2019) using its MOBIS platform. This represents a total of 106,000 active members across all 50 their clients. Ensibuuko places its customers into a three-tiered pricing structure:

- Tier 1: Small SAACOs under 1000 members: Flat fee of around USD 500 per year
- Tier 2: Larger SAACOs over 1000 members with one site: Per-member fee of around one dollar (UGX 3,600) per year
- Tier 3: Larger SAACOs over 1000 members with multiple sites: Per-member fee of around two dollars (UGX 7,200) per year

The current breakdown of tiered customers is as follows:[26]

Table 5. Distribution of Ensibuuko customers into tiers

	Tier 1	Tier 2	Tier 3
Total Number of SAACOs	24	15	11

Ensibuuko also has other services that are typically priced into the start-up costs of onboarding a new client. The client will usually pay for training sessions which amount to around USD 15/day for training that occur within Kampala and USD 30/day for other areas, with an average length of two to three days of training. In addition to training, Ensibuuko facilitates the relationship with Airtel for the APN

[25] Based on TruTrade responses to evaluation inquiries.
[26] Based on communication with Ensibuuko through this evaluation process.

connection, which costs approximately eight dollars in total, with close to two dollars and fifty cents per SAACO going to Ensibuuko each month.

Ensibuuko's customer base has grown 14 percent since the end of AgriFin Mobile. Most of its customer acquisitions come in waves at the beginning or end of the year, as many SAACOs are required to wait for their annual general meeting (AGM) to make a final decision on using the new platform. Ensibuuko has a goal to double the number of SAACOs from 50 to 100 by the end of 2019, which it is unlikely to reach despite some evidence of steady growth.

From March 2018 - February 2019 the platform helped its clients facilitate 22,134 loans worth USD 14.6 million. Ensibuuko estimates there is a less the ten percent default rate on the loans issued through their system.

Beyond mobile money integration, Ensibuuko did not bundle additional services for smallholders on top of the MOBIS platform during AgriFin Mobile's project life span. Yet, the idea of continuing to provide value-added services on top of its platform is becoming a primary strategy for growth. For example, AgriFin Mobile, through a CTA funded programme Mercy Corps was implementing called MUIIS, introduced the idea of weather-based index crop insurance. Ensibuuko partnered with the project to build out the technology side of the insurance product. The MUIIS project eventually handed the insurance product off to Ensibuuko, which has taken it on under its service offerings to its SAACO clients.

The project handed over a database of 250,000 farmers to test the insurance product. This database is a significant piece of intellectual property, which Ensibuuko stated is worth around 10 dollars per individual in revenue potential per year. The product’s initial pilot in February 2019 covered 500 acres, and it is currently trying to ramp up for the next planting season in July to offer expanded coverage. Ensibuuko’s longer term goal is to cover around 20,000 acres of land.

In addition to crop insurance, Ensibuuko sees its SAACOs as the last mile vehicle to deliver a variety of solutions. It hopes to not only continue the growth of access to financial services via this network of SAACOs, but also to expand to healthcare, energy, and other services that rural households need. The firm is taking a broader platform play that requires it to think beyond its primary offering. While this may not always include specific services that address the agricultural needs of smallholder farmers, it will likely touch on other needs of rural households and align with the bundled approach favoured by the AgriFin Mobile theory of change.

In addition to expanding the services delivered via a digitized network of SAACOs, Ensibuuko’s angel investor group is currently attempting to raise a debt facility that would help inject new capital into SAACOs that have high performing loan portfolios. Ensibuuko plans to use the data it has on its clients’ loan portfolio and deposit performance to generate a credit score for the SAACOs that would enable them to access more capital. This credit facility could also be used to encourage SAACOs to sell more insurance, as hitting a quota on members covered by crop insurance would provide more confidence in loans distributed to those members. If members are covered by crop insurance, crop failure becomes less problematic for repayment of a loan.

Ensibuuko sees value-added services as the primary way they can drive customer acquisition and diversified revenue streams. While Ensibuuko is not profitable yet, it provides an interesting model for thinking about bundling services on top of a core service offering. While there was pressure to bundle services right away, AgriFin Mobile found that prioritizing bundling first may spread a small company's resources too thin and divert investment away from getting very good at their core offering. Ensibuuko focused on getting its core offering in MOBIS up and running and is now using that platform to bring additional services to its clients.

In order to break even, Ensibuuko estimates they need two to three times as many members as they have now. By achieving a monthly revenue stream of USD 40,000 they will be able to break even. They feel with their value-added services such as mobile money and SMS they will be able to expand and diversify their source of revenue beyond membership fees.[27]

3.6 Summary

Somewhat counterintuitively, the Uganda partners are arguably among the most likely to succeed. AgriFin Mobile, as noted, operated in a more “hands-off” approach, with its investments mimicking those of impact investors, allowing partners to pursue key investments that remain central to their core businesses. It is difficult to gauge the extent of impact among smallholder farmers that, collectively, Ensibuuko and TruTrade make. However, it can be clearly stated that AgriFin Mobile’s investments continue to play out, are likely to continue to grow, and both directly and indirectly benefit smallholder farmers as was originally intended. The most glaring weakness of Uganda activities is with respect to gender inclusion activities, with no clear indication of impact on this front, and possibly even a reification of gender-exclusive patterns, even if unintended.

4.0 ZIMBABWE

4.1 Background

Zimbabwe in some ways presents the best and most challenging elements of AgriFin Mobile as a whole. A committed and determined local Mercy Corps office, combined with a Zimbabwe-based MNO (Econet) with massive reach within the country and a demonstrated interest in reaching the rural-agrarian market, laid the groundwork for successful outcomes. Indeed, both the EcoFarmer platform, and related ZFU Combo package—which incorporated a partnership with Zimbabwe Farmers’ Union (ZFU), another large, credible and invested local actor—were arguably the models most closely aligned with AgriFin Mobile’s ideal of a bundled agricultural service delivered electronically.

Even with these supporting factors in place, a combination of unforeseen events—including a serious currency crisis, with knock on effects throughout the economy, and programming challenges in recruitment, messaging or basic logistics—leave both models in a precarious position, with their respective futures, and certainly their impact, in doubt.

4.2 The Zimbabwe Business Models: MNOs and Ag Unions with Scale

Econet and ZFU Combo

Econet Wireless Zimbabwe is the most significant mobile network operator in Zimbabwe, with its EcoCash platform reported to have as many as 6.7 million registered users, or over 80 percent of adult

[27] Ibid.

Zimbabweans, as of November 2017.[28] Its reach and visibility, combined with the embeddedness of EcoCash in society, made it an ideal partner with whom to build bundled RASs. ZFU, for its part, has between 150-200,000 paying members across the country, with 90 percent labelled as "communal" (versus medium- and large-scale commercial operation) farmers. It signed an MoU with Econet in 2016, wanting to bring new services to its farmers and access new revenue streams. Econet, meanwhile, wanted to leverage ZFU's structure and organization at the village and ward levels. Mercy Corps supported each organization with marketing and associated costs, business development (with ZFU), content review (of farmer tips in particular), and a redesign, with input from human-centred design consultants, of EcoFarmer as a whole.

The EcoFarmer menu (see figure below) has expanded since then to offer a suite of services for clients. One may register for paid services including EcoFarmer Club and ZFU Combo, while also purchasing one-off services such as farming tips or farming news. ZFU Combo members have access to bundled services that include farming tips, USD 25 weather-indexed crop insurance, a ZFU membership, and "EcoSure" funeral coverage (the most popular service). EcoFarmer Club members have access to bundled farming tips, market prices, the trading platform (which AgriFin Mobile reporting refers to as MBOSS), and weather forecasts. ZFU Combo costs Zimbabwean RTGS 2.50 per month and EcoFarmer Club costs Zimbabwean RTGS 1.00 per month. EcoFarmer's first and most prominent product is the delivery of information (weather, market prices, and farming tips) to its clients.

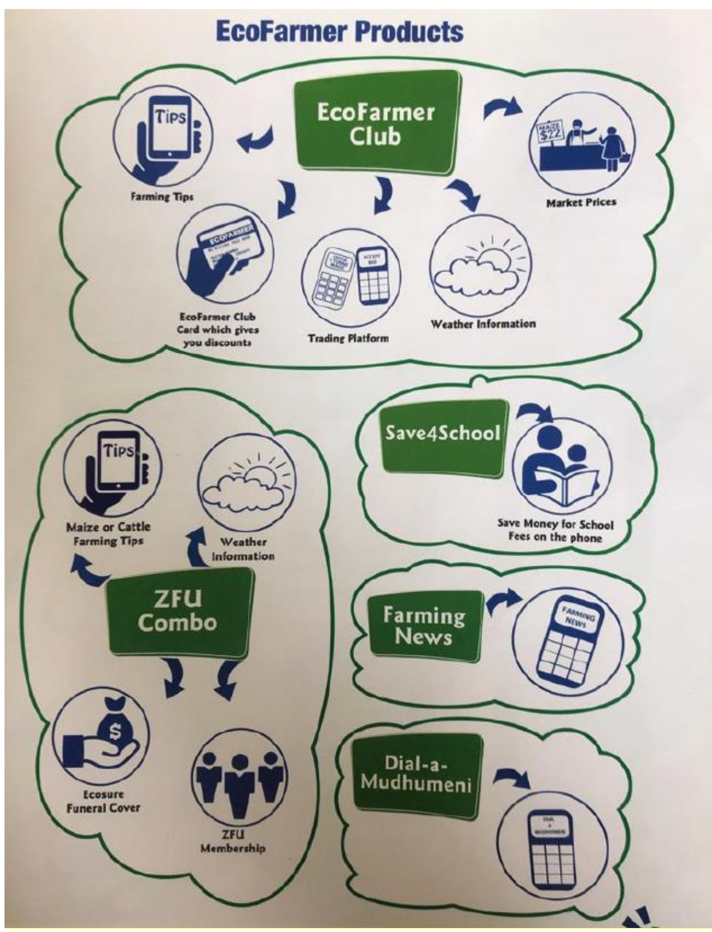

Figure 1: An Econet-produced Visual of its Platforms

[28] https://en.wikipedia.org/wiki/Econet_Wireless

Based on farmer feedback stemming from focus group discussions in each Rusape, Murehwa (Wards 8 and 9) and Goromonzi, both EcoFarmer Club and ZFU Combo's information services—particularly weather forecasting and market pricing—resonate well with registered farmers across the platforms.[29] The use of information services, however, is more a one-way receipt of SMS messages rather than interactive question and answers enabled through the mobile service delivery, as sometimes advertised.

For ZFU Combo clients, meanwhile, the primary reported reason for paying the subscription fee is the funeral coverage insurance. While this may not be an agricultural product, it is an example of a service providing solutions that meet smallholder farmer household needs beyond agriculture. This feature can also serve as a hook to a service that includes other features, like insurance and weather forecasts, that serve agricultural needs.

All the services described above are delivered via mobile phones through the Econet mobile network, and collectively are closest to the envisioned AgriFin Mobile project outcome of mobile phone-delivered bundled, rural, agricultural services that serve smallholder farmers.

According to Econet, EcoFarmer has registered over 1.4 million farmers on its platform. Data in the AgriFin Mobile dashboard, however, suggest an active (i.e. paying) customer rate that is significantly lower. Qualitative feedback largely validated this observation. As of May 2018, the platform had 33,559 paying customers between the EcoFarmer Club (14,525) and ZFU Combo (19,034) products.[30]

Econet officials were unable to confirm the current active user count for its platforms but based on conversations with EcoFarmer customers, it is unlikely the number of active users has grown significantly in the last year. It is also important to acknowledge the influence of macroeconomic hardships in Zimbabwe. The country's currency crisis has made many things less affordable, especially services like EcoFarmer, and respondents in key informant interviews and focus groups consistently cited the unfolding economic crisis as having thwarted their best laid plans.

Interestingly, separate of how it is marketed or perceived in offices, both ZFU Combo and EcoFarmer users regularly distil the product down to the most utilitarian components to them. As noted above, ZFU Combo customers generally perceive the product as less a bundled agricultural service, and more a tool to acquire needed funeral insurance. Similarly, EcoFarmer Club members in Murehwa District's Wards Eight and Nine were mostly familiar with the product as an information service. When asked, for instance, how they use EcoFarmer Club, most focus group participants cited weather forecasts, market pricing information, and farming tips as the primary use case. These aspects were nevertheless, on average, perceived positively: One farmer, for example, referenced how he used the weather information to help him better align planting his maize with the coming of rain. This, according to the same farmer, permitted a 20 percent increase in crop germination, while others also reported "bumper crops" despite a persistent drought, because of farmer tips.[31]

Myriad factors hampered uptake, interactivity and even the perceived benefits, however. These, as well as positive outcomes are explored below.

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[29] Focus Group Discussions (May 29-30, 2019)
[30] Communication with EcoNet
[31] Focus Group Discussions (May 30, 2019).

4.3 Emergent Themes and Experiences from Zimbabwe

Implementation Challenges

Despite the very conscious, structured and determined effort to create bundled services that were highly relevant to farmers in Zimbabwe, messages and the associated support line (a telephone hotline) are increasingly ineffective, with elements currently defunct. Without the support of Mercy Corps, there have been no recent content development meetings, and no indication, according to its former coordinator, as to whether there will be.

More illustrative of implementation breakdowns is the call centre, or 'Dial a Mudhumeni' service, which continues to be advertised as a service for both EcoFarmer and ZFU Combo subscribers. Farmers should be able to reach an agricultural tech worker to discuss aspects of the farming tips, forecasts, or insurance schemes that they do not understand, or call in with more unique problems to receive feedback. In reality, the programme only operated from 8 am to 1 pm on weekdays, and was staffed by a single person with broad, but general knowledge of agriculture science.[32] From farmers, feedback was nearly unanimous across five focus group discussions that the 'Dial a Mudhumeni' service was irrelevant to them, or at least an unused option. The vast majority, in fact, were unaware of the service.[33]

While only anecdotal, numerous examples of implementation breakdowns arose during interviews and field visits. In one focus group (in Rusike, Goromonzi),[34] for example, ZFU Combo participants reported that they had received messages telling them that they had qualified for crop insurance several months prior, but that payments never materialized. Another respondent from the same group noted that he was informed, via SMS, that he would receive a free bag of fertilizer, but this too did not materialize. Across multiple focus groups, respondents noted that they had never received their membership cards. With or without cards, a significant portion of respondents appeared unaware that their memberships entitled them to discounted inputs at local extension shops. Thus, despite some farmers citing very specific examples of improved germination, yields, and seed selection because of farmer tips, many others reported planting late, and consequently poor harvests, because the costs of inputs had become out of reach, and exceeded the benefits they received as ZFU Combo or EcoFarmer Club members.

Technology Literacy and Capacity

While messaging (farmer tips and weather, for example) was broadly relevant, other services were not, largely because of people's lack of familiarity with phones. ZFU Combo users routinely demonstrated a lack of comfort interacting with menu options on their phone, and generally reported only passive use after being registered (usually with outside help), like receiving messages. Service charges were deducted automatically from EcoCash e-wallets. In other words, farmers did not engage nor interact with agents in any meaningful way, limiting options technically available to them through their memberships.[35]

Like the ZFU Combo respondents, EcoFarmer Club members reported only interacting with the EcoFarmer platform via push SMS messages. Rarely did farmers dial the USSD servicing using the short code *144# to engage with the EcoFarmer Club menu. Many of them did not know how to use the USSD menu or did not find a need to pull information as it was pushed to them on a regular basis.[36]

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[32] Interview with Mubatsiri (contracted firm) personnel, Harare, Zimbabwe (May 31, 2019).
[33] Focus Group Discussions in each Rusape, Murehwa, and Goromonzi districts (May 29-30, 2019).
[34] May 30, 2019.
[35] FGDs. Rusape and Goromonzi, Zimbabwe (May 29 and 30, 2019).
[36] FGDs. Murehwa, Zimbabwe (May 30, 2019).

This lack of interaction with the menu points to a barrier to expanding the types of services offered via EcoFarmer Club or ZFU Combo. If the relationship with the farmers remains one-way via messaging, it will be more difficult for EcoFarmer to add on additional services beyond information.

Phone ownership itself was widespread, though itself not universal. And ownership did not necessarily translate into regular use: access to charging stations (usually with solar), air time, sim cards, accessing used or old phones, and work itself (in the field, away from power) meant that phones were not always on, usable, nor accessible. Many respondents reported checking their phones only occasionally, and thus missing messages. This was disproportionately reported among older respondents, notably.[37]

ZFU officials, agricultural scientists at the University of Zimbabwe, and field agents, all acknowledged that face-to-face interactions between farmers and experts/extension workers, far outstripped what was being provided by the mobile services. As noted in other cases, recruitment, and even uptake of technical advice, hinged most on human—not technology-based—interactions.

A Focus on Relevance

Perhaps the most striking example of a purposeful, dedicated effort to promote programme relevance stems from Zimbabwe. Mercy Corps country leadership described a process (which mirrored feedback from Mercy Corps leadership elsewhere) in which the office positioned itself as an advisor and facilitator, rather than a driver. This can manifest differently, especially vis-a-vis a large mobile network operator, but in the case of Zimbabwe it resulted in concrete steps to gather farmer feedback and funnel this feedback to Econet to adjust its programmes.

Specifically, smallholder feedback was collected in order to tailor programmes (ultimately EcoFarmer) to be more relevant, bundle appropriate services, and create more relevant messages for subscribed farmers. Econet, for its part, was keen to target smallholder farmers, but otherwise unprepared to understand farmer needs or interests, nor how to target or systematically gather feedback from farmers. Mercy Corps facilitated this process, but even more key was the creation of a content-review board.

The local Mercy Corps office conceived the idea, and subsequently contracted University of Zimbabwe agricultural science and horticultural staff to lead and curate content development for bulk SMS messages that were part of the EcoFarmer and ZFU Combo package. Mercy Corps, through AgriFin Mobile, financially supported this endeavour and helped with coordination and recruitment of content developers from different backgrounds, including government agriculture extension workers.

"What I valued most was the attendance of the agri-techs [extension workers], *because they are the ones right on the ground…"*

-Guadencia Kujeke, Crop Science Lecturer, University of Zimbabwe

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The content development process itself consisted of quarterly, multi-day meetings in Harare, attended by a range of stakeholders who were paid per diem-type allowances. Groups were formed around specific

[37] Based on the totality of FGDs in Zimbabwe (May 29-30, 2019).

topics and crop types, content debated, and messages drafted that were intended to create the basis for a year's worth of daily, easily understood messages, pushed to subscriber farmers. Messages were translated, additionally, into two local languages.

Importantly, there was an effort to relay basic information related to droughts, or heavy rains, and to assist farmers in judging when to plant. In an era of climate change, this was an explicit effort by the content creators to address some of its implications. The messaging was otherwise automatic, however, and could not respond to acute weather events, nor even shifting patterns associated with climate change (as they drafted content enough for one year only).

Messages were sometimes too vague, noted a professor in crop science involved in the process, given the extent of climate zones across the country and localized problems, like a pest outbreak, and the inability of a text message to diagnose acute problems. The limitation on characters (160), moreover, rendered some messages as "virtually meaningless."[38] The content review board was folded under Econet EcoFarmer operations as AgriFin ended, but it appears to be largely defunct, currently. No one from the original process was aware of a next or future round of content writing and review.

The ZFU Combo package was also, with the support of Mercy Corps from behind, largely driven by farmer needs and interests, including weather-indexed crop insurance, farmer tips, weather forecasts, and a funeral insurance programme. The incorporation of the funeral service can be interpreted several ways. It was certainly a hook to attract greater subscribers. But it is also the inclusion of services into a bundle with a high degree of local relevance and significance, to the point that farmers widely reported that insurance was a key reason they continue to pay subscription fees.

Farmers widely expressed satisfaction with weather forecasts, though lamented the time between them (once a week was the reported average). Farmers were more mixed with respect to the ultimate relevance of farmer tips, though some—focus group participants in Murehwa Ward 8, in particular—described bumper harvests despite a drought because of using drought resistant seeds, and different plant varieties, based on information they received from texts. As noted earlier, others reported timing their planting based on advice they received from texts. This pattern was highly variable, however, with equal numbers demonstrating either a disinterest, or passive disregard, for the texts themselves.[39]

The content review process was ultimately undermined by the end of AgriFin Mobile support and was limited in its impact overall (mostly a function of technological constraints themselves, especially around length and automation). It nevertheless represented the most overt, concerted effort to make programming relevant to farmers under these constraints.

Partnerships and Project Control

While all parties expressed satisfaction with their partnerships, and lauded each other for their respective contributions, some tensions existed between the operations and priorities of a large MNO and Mercy Corps' project objectives. Some are familiar: Econet bristled at reporting requirements for payments and contracting processes. It also had country-wide ambitions, while Mercy Corps prioritized specific regions (Mashonaland East Province in particular).[40]

[38] Interviews. University of Zimbabwe, Harare, Zimbabwe (May 28, 2019).
[39] FGDs in Rusape, Murehwa and Goromonzi (May 29-30, 2019).
[40] Interviews with Econet and Mercy Corps. Harare, Zimbabwe (May 27-28, 2019).

These were minor complaints overall. Potentially more serious was the development of related technology and its oversight. Econet was clear from the outset that it wanted full control of the associated technology. This makes obvious sense, but as engineers and technicians moved to other departments within Econet, Mercy Corps lost elements of control over, and tracking of, the key technological developments that underpinned a successful platform. Turnover and mobility between departments continues to hamper EcoFarmer operations within Econet. Moreover, as an observer with deep familiarity with Econet and its operations reported, the training and capacity of junior staff is weak, leading to delays and buggy systems. Indeed, personal experience with the EcoFarmer platform in-country was fraught, with errors and bugs encountered regularly.

To be clear, the partnership of an NGO and MNO was innovative in and of itself, and experimental for both parties. Each brought significant value-add to the project, and Mercy Corps' role as facilitator was essential to its development and implementation of platforms that were relevant to smallholder farmers. Based on interviews, it is highly unlikely that Econet could have done this independently— But future iterations will need even more clear delineation of roles and responsibilities, and Mercy Corps will need greater control (or monitoring capacity, at least) of technology that is central to its programme success.

4.4 Gender

Gender remains a somewhat enigmatic topic to analyse in Zimbabwe. On the one hand, project leadership at each the Mercy Corps office and Econet, as well as in the content review process, was constituted by women. While ZFU's leadership consisted mostly of men, they worked closely with women's savings groups, and ZFU extension workers were often women, including those met in the field.[41] As Mercy Corps pointed out, payments triggered to women's savings groups helped avoid some of the problems confronted by TruTrade, which was paying men (who were registered on their platform) for women's labour. Moreover, Mercy Corps did take explicit steps to recruit women for trainings—including drafting a physical flyer for women to bring to their spouses that explained the training activities and how it would benefit the entire household—and to design trainings for women that accounted for the disproportionate time burdens they typically bear (though it was unclear how this was accomplished).[42]

On the other hand, separate of a general awareness that gender was an important project consideration, and beyond the assumption that because more farmers were women, women would be helped more than men, this evaluation cannot highlight any specific outcomes that empowered women or bred greater inclusion in decision-making or leadership. Gender disaggregated data, according to Econet, was requested by Mercy Corps, but is only now becoming available.[43] Despite an awareness that some crops are largely the domain of women (small grains and in horticulture), farmer tips were not tailored to these value chains (indeed in a focus group discussion with women ZFU Combo participants, respondents complained that there was no advice for their garlic cultivation and on markets).[44] Phone ownership did appear equal between men and women, but time poverty—borne of the disproportionate responsibility for child care, household chores, *and* cultivation—was not systematically addressed.

Thus, while again gender floated in the background as something to consider throughout programming, or be mindful of, there was little to demonstrate its explicit mainstreaming in programme activities, nor any substantive revisions to activities to better address gender inclusion and empowerment.

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[41] ZFU leadership also noted that they developed a specific gender policy in 2009 as part of an EU grant, but details were scant.
[42] Interviews with Mercy Corps. Harare, Zimbabwe (May 28, 2019).
[43] Ibid.
[44] FGD in Rusape, Zimbabwe (May 29, 2019).

4.5 The Performance of AgriFin Mobile Partners Since Programme End

With 6.7 million mobile phone subscribers, Econet as a partner offers an incredible potential for scale and wide distribution of services. As noted previously, AgriFin Mobile's primary value-add to EcoFarmer was supporting customer acquisition costs and driving subscribing customers for both the EcoFarmer Club and ZFU Combo products. This usually required arranging workshops and trainings that gathered potential customers in one place to learn about the EcoFarmer product offerings. AgriFin Mobile leaned on other Mercy Corps programming to help source areas where these customer acquisition activities could take place.

This type of marketing and customer acquisition strategy came with a cost, and it does not seem to have resulted in enough paying customers for EcoFarmer to assume these operating costs now. AgriFin Mobile and EcoFarmer could have been more active in analysing whether the customer acquisition strategy they were using was worth the cost during the project timeline. Transparency and communication around what the actual costs of these activities were between EcoFarmer and AgriFin Mobile could have prompted development of more viable marketing strategies that EcoFarmer could sustain after the project's end.

In an interview, EcoFarmer stated a viable active rate for the EcoFarmer Club product of 40 percent of total registered customers. Using the total number of registered customers of 1.4 million, cited by EcoFarmer in interviews, EcoFarmer Club would need an active customer base be 560,000 members to be profitable. This would generate approximately USD 1.3 million annually in membership fees.

Based on active customer numbers from the AgriFin Mobile dashboard, hitting the 560,000-member number would require 37 times the amount of growth of the current active customers base. This means that significant growth is still required, but investment from Econet in customer acquisition activities has likely stayed the same, while AgriFin Mobile's contribution is no longer available.

For ZFU Combo, revenue generation is higher with the RTGS 2.50 monthly price tag. Eighty percent of that fee goes to Econet, with 40 percent going to EcoSure and 40 percent going to Econet. With the current active numbers from the dashboard, this means that ZFU Combo is currently generating an estimated USD 160,000 in annual revenue for Econet and USD 40,000 for ZFU. Currently, neither product is likely profitable, which challenges the EcoFarmer team to convince their superiors to invest more into the product.

Econet's total revenue in 2018 was USD 832 million,[45] which suggests that currently ZFU and EcoFarmer Club estimated revenues represent only .02 percent of total revenue for the company. While agriculture remains a sector with which Econet plans to engage, the EcoFarmer product as it exists now faces serious risks and may be an unsustainable venture as it currently stands.

4.6 Summary

On paper, the Zimbabwe case is arguably the most idealistic manifestation of AgriFin Mobile, with bundled RAS delivered over a wide and (mostly) robust network to smallholder farmers. Mobile money, moreover, is integral to the system, with huge uptake and reliability.

[45] https://africanfinancials.com/Econet-wireless-zimbabwe-releases-2018-annual-report/

Even in this scenario, however, conflicts and complications arise that inhibit meaningful impact. These have already been articulated above but connecting them all are likely the tensions still inherent in developmental programme objectives, with the profit needs and culture of a successful MNO. After that, another common denominator is the discrepancy between what technology can provide, versus both the up-front and ongoing human connection necessary to sustain gains. Robust, regular training that overcomes a lack of familiarity with mobile devices and options, follow-through with membership programmes (for discounted inputs, the delivery of cards, and even insurance payments) and support (to help decipher messages, unpack more complex concepts, or to respond to acute challenges from weather or pests) are all essential to sustaining a programme that is otherwise successful on a drawing board.

Finally, meaningful movement in gender empowerment requires specific, detailed, and persistent programming that targets barriers to inclusion of all kinds and cannot be limited to assumptions around the number of female farmers reached. The Mercy Corps office in Zimbabwe deserves praise for its intentionality around both gender, and programme relevance—in particular, messages could have been drafted to check a box and without the care and effort that went into them, and gender could have been overlooked entirely in trainings. But despite these efforts, the impact and sustainability of ZFU Combo and EcoFarmer Club remain in serious doubt.

5.0 COST EFFECTIVENESS ANALYSIS

This section includes a specific (if basic, given data constraints) Cost Effectiveness Analysis (CEA), in order to estimate a value for money (VFM) approach (see CEA sub section below).

In addition to exploring the potential impact of the AgriFin Mobile programme and its ability to improve the livelihood and wellbeing of smallholder farmers, the analysis also reviewed the relationships between the use of project resources and reported project outputs. Given how project outcomes and internal project documents are disaggregated, the resulting cost effectiveness analysis is conducted at the country level. Additionally, the outcomes are recorded cumulatively across both phase 1 and 2 of the AgriFin Mobile programme which allows for a broader trend analysis to be considered.

5.1 Methodology and Framing

This analysis generally looks at the cost-effectiveness ratio (CER)—calculated as cost (denominated in Swiss Franc, CHF) per beneficiary served—for each of the country models[46]. The CER only reflects AgriFin Mobile's costs and does not consider the total economic value of the activities conducted. The ratio takes the form below and is calculated separately for each of the three countries:

$$CER = Total\ Projects\ Costs/Number\ of\ Beneficiaries\ Served$$

In applying the CEA to a wider VFM approach, it is important to also understand the project's objectives and context. For example, an analysis focused on understanding the efficacy and scaling potential for a pilot programme might consider marginal costs and how they might shift under various projections or

[46] Due to the nature of the data shared and limitations in terms of access, the cost-effectiveness analysis is not able to judge the effectiveness of individual business models. Moreover, analysis of costs for each model would also necessitate data on marginal costs per customer or beneficiary served, which is often proprietary or otherwise closely guarded by private sector partners. Instead the CEA will focus on the relative efficiency of each of the different country approaches

target output goals. In the case of AgriFin Mobile, the CEA focuses on the different types of business model activity conducted in each country. While the ultimate focus in each was to positively impact the livelihood and wellbeing of smallholder farmers, the approach, stakeholder groups engaged, and greater context all drove the development and evolution of the business models in different directions. As a result, direct comparisons of CER figures are less useful for understanding the overall efficiency and economy of each approach. Instead this exercise will explore the trends of each model and understand how they performed over the life cycle of the project, and where strengths and weaknesses appear to lie.

All relevant outcome data used to estimate the CER and conduct the CEA comes from the final project report prepared by Mercy Corps in 2018. Activity output data is disaggregated across three years of phase 2 (2015-2018) and includes beneficiaries covered and served in phase 1.

The calculated CERs from the AgriFin Mobile project highlight and reinforce differences in how each country/business model targeted smallholder farmers. The following are the main takeaways from this compilation:

5.2 Key Findings

Differences in costs per beneficiary type reflect the context and approaches utilized by each set of business models.

Efficiency was not equal across the three countries, reinforcing the notion that each set of models was distinct in its ability to engage and incorporate smallholder farmers ("SHF" in table below). The following table captures the rate of spending per beneficiary outcome across each of the three countries. The beneficiary outcomes referenced are taken directly from the AgriFin Mobile Project 2017-2018 Narrative Report.

Table 6: Cost Effectiveness Ratios by Country (CHF per beneficiary)

Beneficiary Outcomes	Indonesia			Uganda			Zimbabwe		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
SHF Reached	11.24	10.58	7.27	2.97	1.63	1.32	5.80	6.39	6.83
SHF Active	12.29	11.57	12.04	2.98	20.99	10.74	229.41	184.10	133.15
SHF Agriculture Advisory Service	16.00	14.16	9.07	-	19.07	13.27	5.80	6.39	6.87
Agriculture Advisory Service Female	39.99	25.40	38.02	-	34.94	32.93	12.35	13.73	14.78
Agriculture Advisory Paid	18.15	15.91	17.23	-	20.32	19.82	229.41	184.10	133.16
SHF Financial Service	66.75	39.82	36.59	3.02	1.68	1.70	497.16	124.00	101.61
SHF Financial Service Female	591.05	70.27	66.25	17.82	4.61	4.21	1,001.53	275.41	218.53
Bundled	1,126.31	469.06	151.89	-	13,204.69	562.76	497.16	82.47	49.13
Bundled Female	3,745.11	804.20	347.12	-	56,881.75	1,953.67	15,109.00	2,029.33	559.92

These figures illustrate that, in the case of Uganda, cost efficiency, or lower CHF spent per beneficiary, was most observed in areas related to the delivery of financial services. This is not surprising given that the crux of the private sector actors, TruTrade and Ensibuuko, both focused heavily on financial services to farmers through online platforms and SAACOs. In Zimbabwe, the most cost-efficient outcomes come from the business model's ability to deliver agricultural advisory services. This is driven by rural agricultural services being provided by EcoFarmer, combined with breadth of access granted through collaboration with ZFU. Indonesia displays the most stable and cost-efficient outcomes relative to smallholder farmers actively engaged[47]in agricultural or financial services. According to internal Mercy Corps reporting, the large bulk of this is driven by activity from phase 1 of Indonesia's programming.

This level of engagement may be connected to the type of platform and engagement that the financial model was able to foster. Whereas on the one hand the Uganda and Zimbabwe approaches leveraged large existing networks, Indonesia focused on establishing a cyclical loan product and financial management system that would require higher levels of engagement.

There is a general trend of improved efficiency observed across all three countries.

In most instances (over 75 percent), cost efficiency ratios improved from year to year. It also appears that business model activities require at least a year of lead time to begin approaching more acceptable levels of cost efficiency. This generalization is based off substantial reductions in cost per beneficiary observed from year 1 to 2, followed by more muted reductions from years 2 to 3. While less likely, it did appear that cost increases were observed, particularly in Zimbabwe. Zimbabwe has the most instances of costs **increasing** per beneficiary, with regression being driven by the provision of agricultural services to smallholder farmers. However, as Zimbabwe had the highest overall levels of farmers engaged in this category, this may be evidence of a potential floor effect as opposed to an inability to deliver services effectively.

There is also evidence of more dramatic swings, particularly in areas such as the delivery of bundled services. These are all generally positive and likely reflect gains due to the project refocusing on specific activities. Relative to the other countries, Indonesia appears to have remained most consistent through the three years with changes and improvements in cost-efficiency being less dramatic, though still positive.

The split between administrative costs and project-related expenses is stable throughout the project.

A review of project-level spending was conducted to understand the degree to which resources were allocated to project-level activities compared to administrative, or overhead costs. Based on the documentation provided, AgriFin Mobile has remained consistent across both time[48] and geography in maintaining a 50 percent split between project and administrative costs (see the figure below).

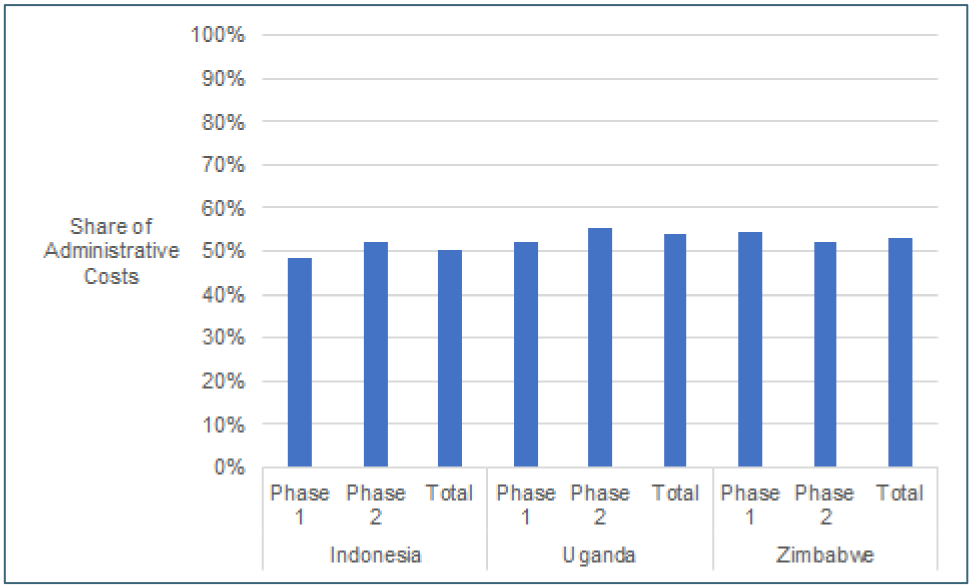
While this observation is, on its face, inherently neutral, it does speak to a broader question around value for money. With its focus on country ownership, sustainability, and incubation of private sector-focused business models, AgriFin Mobile has a distinct goal of transitioning project activities to economic viability. The relative stability of project and administrative activities suggests that the structure and allocation of project activities may not have pivoted significantly to prioritize transition activities or to develop a gradual process to ensure and prioritize stakeholder hand-off and transition. Interviews with

[47] Mercy Corps defines an active beneficiary as one that has engaged the programme or its services in the last 30 days.

[48] Phase 1 of AgriFin Mobile was conducted from 2012-2015 while phase 2 was conducted from 2015-18.

stakeholders, such as those involved with Indonesia's[49] Agriculture Finance Model, reported a lack of cohesion around the hand-off process and future activities to carry on the programme.

Figure 2. The ratio of administrative to total project costs has remained stable throughout the project



6.0 PROGRAMME-LEVEL EVALUATION

6.1 Introduction

While granular, contextual variables—from personalities to local politics—influenced outcomes in each country, this section is intended to capture the high-level lessons that cut across all the countries. Its goal is to summarize lessons learnt, through the lens of a post-hoc, process evaluation to help inform donors, partners and all parties contending with the delivery of bundled RAS through mobile platforms in challenging environments. It is structured according to the current industry standard of OECD-DAC criteria, for ease of interpretation and comparability.

6.2 OECD-DAC Analysis

Impact

- On Farmers: Low
- On Behaviour: Low
- On Gender Empowerment: Low
- On Private Sector Partners: Medium

[49] Cite meetings with Agriculture Finance Model Stakeholders

This evaluation was equipped to measure impact the least. Its emphasis on desk review of materials and a qualitative sweep of local personnel, partners and farmers, to the extent possible, makes gauging impact, statistically, unfeasible. However, after triangulating the feedback of respondents of different experiences and perspectives vis-a-vis the project, some broad interpretations are presented to assess 'Impact.'

Overall, impact—as assessed with respect to enhanced farmer livelihood—was likely low. Too many forces, from prices to infrastructure, currency fluctuations to politics, and gender to health and education levels, impinge on households to make the introduction of even bundled services be meaningful. As some more candid respondents in a focus group discussion summarized things, when asked how the programme changed their lives, "we were farmers before mobile phones," deftly acknowledging that their experience, combined with their environment, outstripped what any single programme could do.[50]

On an even more granular level, evidence of accurate utilization of bundled RAS, and formal loan use, was overall low, though both use cases are characterized by high variability. The effective use of mobile money was relatively high in Indonesia and Zimbabwe, but more conflicted in Uganda. Only in Indonesia, where it was an essential part of the Agricultural Finance Model, was formal loan use an important outcome. Reported changes in production, agricultural and non-farm income were sporadic and inconclusive, though there is clear evidence of higher prices, and higher values, flowing to farmers working with TruTrade, for example, and individual successes in Zimbabwe, but again too sporadic and variable to draw firm conclusions. There is similarly no firm evidence to suggest that smallholder farmers are any better prepared to weather shock, or are more financially secure, after AgriFin. Finally, gender dynamics at a household or village level appear not to have been affected by AgriFin Mobile activities.

The above findings are not surprising, however, given all that must sync to bring about transformational change. AgriFin Mobile's impact was likely most profound among partners best able to capitalize on Mercy Corps' support and funding—TruTrade and Ensibuuko most notably. These companies measurably benefitted from AgriFin financing and support, which has had a meaningful (if indirect) impact on the farmers they work with. Larger MNOs and banks, while also directly benefiting, were less obviously impacted, given their outsized roles in the economy, or subjectivity to forces including government regulation.

More subtly, all organizations were impacted to the extent that they were all experimenting with new collaborations, in new fora, with different institutional cultures. In each country, private sector actors benefited from Mercy Corps' institutional and contextual knowledge of rural agriculture. Mercy Corps, likewise, was pushed out of comfort zones routinely, to defer to private sector partners, and adapt to their revenue cycles and needs. This will be part of a longer-term transitional process if future projects continue to strive for partnerships with the private sector.

Relevance

- To Farmers: High
- To Private Sector Partners: Medium-to-High

The project overall was highly relevant. As discussed throughout the evaluation, aspects were not. Poor networks, ambiguous farming tips or a lack of training and interactivity with a platform limited relevance to context and local needs. Similarly, for some demographics, especially older members of society, the

[50] FGD. Rusape, Zimbabwe (May 29, 2019).

tools and methods were less resonant. However, between the pervasiveness of phones and a demonstrated demand for information (regarding prices, markets, weather, inputs and crops), as well as for services including insurance and financing (with payments reliably delivered electronically), AgriFin Mobile was appropriately designed.

Even when farmers were served less directly by AgriFin, as in the case of TruTrade and Ensibuuko, there was obvious demand and interest in the services provided, and a clear value-add.

As networks and phone use grow, and mobile money continues to grow, the relevance of bundled RAS, delivered through mobile platforms, will also grow in relevance.

Effectiveness

- On Farmers: Low-to-Medium (programme-dependent)
- On Private Sector Partners: Medium-to-High (also dependent)
- On Women Farmers: Low

The particularities of effectiveness per country are detailed in the previous chapters. At the programme level, effectiveness is mixed: AgriFin Mobile was unable to achieve the broad, systematic implementation of bundled RAS, as anticipated. Marketing and promotion varied, so there was broad awareness of programmes, but with little depth.

Perhaps more crucial to programme effectiveness overall, however, is that participant farmers were trained haphazardly, inconsistently, or insufficiently. The obvious result was that farmers were unfamiliar with how to interact with their platforms and capitalize on their membership, options and benefits.

In Zimbabwe, for example, where the cost of inputs was regularly cited as a priority concern (exacerbated by price shocks), few respondents were able to access the discounted inputs ostensibly included as membership benefits. At the same time, the 'Dial-a-Mudhumeni' service that is featured in EcoFarmer promotional materials (and currently, still, on its website), appeared largely incapable of providing technical support, as intended, but was hawking inputs that third-party, private companies paid advertising time for. This is a particularly glaring example of poor oversight and implementation, but nevertheless is emblematic of how programming glitches, or lack of communication between parties, can undermine effectiveness.

Finally, despite atomistic efforts to address gender disparities in time, ability to travel to sell produce, etc., there was no consistency at a programme level to address gender. Women did access RAS at roughly the same rate as men, based on observations, which, as already discussed, was low or inconsistent itself. Women appeared to use mobile money regularly as well, to pay for school fees or purchase inputs, and in some contexts, women were trusted local extension workers or trainers. However, there was no indication that women had greater oversight or control of agricultural work than prior to AgriFin Mobile participation. In other business models, women recruited to be trainers, agents or supervisors, were unable to continue because of other demands. Future programmes will require a more in-depth analysis of how women interact with platforms, perceive them, and use them currently, as well as to identify barriers to uptake and participation before designing more gender empowering iterations.

Efficiency

- Programme Efficiency: Medium to High
- Cost Effectiveness: Medium

Efficiency is estimated qualitatively based on implementer feedback, and triangulating responses between different stakeholders. AgriFin was largely efficient in its implementation in that it generally adhered to a model, across all three countries, in which it partnered with capable actors working with mobile technology and serving a rural, agricultural clientele. As is examined elsewhere, Mercy Corps limited its interference in the practices and business models of private businesses, opting instead to convene facilitators and key stakeholders, leverage its expertise in rural development and value chains, and crucially, reduce cost barriers that might otherwise impinge on a company's willingness to serve rural farmers, including customer acquisition or technological inputs themselves.

Variation across business models and context means that relative efficiency also varies. In Indonesia, for example, the Agriculture Finance Model was able to coordinate a complex multi-stakeholder partnership between firms that had limited to no previous history of collaboration amongst themselves. Mercy Corps' role as convening and facilitating party would help private sector actors overcome regular barriers to collaboration and allow for the collaborative business model to be implemented. Furthermore, by taking a focus on "bundling" services, the project would inherently have efficiency gains over similar efforts that would seek to engage each partner/stakeholder individually.

Indeed, the role of the primary Mercy Corps contact was cited as one of the deciding factors for the success of the business model in the eyes of private sector partners. By facilitating conversations across various sectors and businesses, providing information on key customer groups, serving as the entry point to ensure successful market penetration, and brokering community engagement, Mercy Corps involvement created the conditions for the model to be viable.

In Zimbabwe, Mercy Corps partnered with two of the most prominent organizations in the country, with huge scope and access to rural farmers—through its network reach, in the case of Econet, and through its agents in the case of ZFU. This tripartite relationship allowed Mercy Corps unprecedented scope and reach, even if it restricted itself to its prominent areas of interest (Mashonland East in particular). Its funding could therefore be used, as discussed elsewhere, to augment those areas where Econet would be unable to address, including content of farmer tips, marketing and training of agents. Respondents from both ZFU and Econet acknowledged that Mercy Corps, and seconded staff, were key to the internal development and content of the EcoFarmer and ZFU Combo packages and were also responsive to concerns and technically knowledgeable.

A similar story played out in Uganda, in that Mercy Corps intentionally partnered with local entities well-placed to leverage technology and deliver rural agricultural services. Unlike in the comparison countries, however, Mercy Corps was unable to partner with entities that provided the scope and scale of a national bank or MNO, despite intentional efforts to work with larger actors, including MobiPay of Kenya.[51]

The cost-effectiveness analysis was useful in reinforcing these broader themes while exploring other aspects of the programme through a value for money perspective. Country-level variation observed above was present when examining cost effectiveness ratios for the range of project outcomes.

[51] Interview, Kampala, Uganda (May 31, 2019).

Differences in business models and country contexts appear to drive areas of efficiency and highlight the strengths of each set of each set of models. While Zimbabwe seemed to be better poised to deliver agricultural support, Uganda was more efficient in delivering financial services. Indonesia's business model, on the other hand, seemed more poised to guarantee a more stable set of active users and was less likely to dramatically fluctuate. Associations between administrative and project-related funds also call into consideration the project's focus on transition and support of future viability. Levels of spending or diminishing programme ratios do not immediately indicate that a gradual or deliberate plan was in place to structure the AgriFin Mobile programme to transition over time. Instead the spending patterns reflect more traditional programmes that are vulnerable to becoming untenable once the convening NGO or driving organization exits the scene.

While Mercy Corps nevertheless adhered to an approach that had it play a background, supporting role, targeting critical investment costs for its partners with AgriFin funds, its efficiency was hampered by an ad hoc, somewhat opportunistic posture in which it had to track down potentially suitable partners, rather than systematically evaluate and recruit the best partners. As one key respondent noted, "I told (colleague): 'go into town and see who can do this.'"[52] A result is that some of these partners proved untenable before it settled on working with TruTrade and Ensibuuko.

From the partner side, Ensibuuko leadership expressed only gratitude for Mercy Corps investments: "It would have been really difficult as a business to grow as we have without that support." Mercy Corps' investments in hardware, software, marketing, as well as its credibility vis-a-vis new partners and clients were essential to its growth and effectiveness, its leadership acknowledged. TruTrade, for its part, expressed more frustration, even if also acknowledging the importance of the investments and, more crucially, its timing. TruTrade respondents cited frustration with reporting requirements that they perceived as disproportionate to the amount of grant money received. Econet respondents also expressed mild frustration with what they perceived as onerous reporting and invoicing processes. But in each case, even this negative feedback was tempered. TruTrade lauded Mercy Corps' otherwise hands-off approach and business-friendly "progressive" approach within AgriFin specifically and compared to projects with other donors. Potentially more crucial were HR issues that delayed contracting and implementation in Uganda.

Sustainability

- Programme Investments: Medium to High

The sustainability of each programme was discussed in the country chapters, highlighting the variability partly based on local factors. Some programmes are poised to continue to grow, and project a viable business model. Others are hampered by contextual and programmatic challenges.

The programmes spawned by AgriFin Mobile, however, do have key elements that will continue to reverberate. As noted under 'Relevance' and other sub-sections in this chapter, Mercy Corps has brought together stakeholders with overlapping interests that, even if current business models cannot fulfil, demonstrate a need, a potentially viable market, and further areas of exploration and innovation. Furthermore, Mercy Corps, through AgriFin Mobile, was an early mover in the space of using FinTech to address smallholder needs in a market-based context, or through private sector actors. The tools, services and methods will be the basis for revision and iterating that will yet more efficiently and profitably address these needs. As the business models in Uganda suggest, private sector actors will continue to

[52] Interview, Kampala, Uganda (May 31, 2019).

evolve, and eventually bundle services, or expand their service offerings, when appropriately positioned. This may not have happened during the life of the project, but may still happen yet, based on the experimentation and developments that occurred under AgriFin Mobile.

7.0 DISCUSSION AND CONCLUSION

The analysis conducted for this post-hoc evaluation results in a more circumspect view of AgriFin Mobile from, crucially, the perspective of long-term viability of each business model now that funding and support has concluded. Indeed, the project may have successfully met its implementation targets by the end of the programme, with respect to marketing, MOUs or training. But this evaluation demonstrates that a combination of forces, whether internal to the private sector partners themselves (stemming from human resources, capacity or private sector business needs and priorities) to external forces (from government regulation and macroeconomic wobbles to the cost of coordinating stakeholders) has hampered the sustainability of AgriFin Mobile investments and activities. The complexities and nuances behind both successful and less successful outcomes are articulated in detail above. The most high-level takeaways, to inform future programming, are distilled here in brief.

The Wins

The Convener

Most glaringly, Mercy Corps was the lynchpin in each country that facilitated the convening of partners, provided full information of partner strengths and weaknesses so that mutually beneficial programming could be designed and provided the technical and domain knowledge around agricultural development that made activities relevant. Mercy Corps was no doubt successful in serving this role, and thus laying the foundation for programmes and mostly cohesive business models per country.

The Investor

Most obvious in Uganda, where in fact AgriFin Mobile activities also appeared haphazard and disjointed, Mercy Corps' focused, finite investments, designed to help small private sector partners overcome dauting financial investments in their cornerstone technologies, continue to pay dividends. Mercy Corps was also a convener and facilitated customer acquisition and lent its agriculture development experience to operations, but it was these strategic investments that allowed the companies—TruTrade and Ensibuuko—to proceed linearly with their own business plans and strategies. While long-term success is not guaranteed, each company is likely the most sustainable amid the business models under examination, as evidenced by their growth and independent, internal business acumen and well-articulated strategies. Each credit AgriFin Mobile for speeding up their growth and development. One inherent challenge to Mercy Corps and donors in this strategy, however, is to find the balance between impact-like investor, and adherence to development goals that may simply not be a component of private sector prerogatives.

The Connector

Mercy Corps' experience working with targeted farmers, and thus the geography, context, value chains and complexities of rural agriculture at large, was of huge value to private sector partners who, in theory more than practice sometimes, aspired to serve smallholder farmers, but didn't know where to begin. In each of the countries, there is ample evidence from partner feedback that Mercy Corps' participation and leadership was instrumental to project implementation and was essential to farmers accessing bundled RAS for the first time.

The Challenges

Challenges have been covered in detail throughout the report. Thus, condensing them to a few core ideas, many facets of the project were beyond Mercy Corps' control. Separate of macroeconomics or political winds, Mercy Corps was also unable to ensure the HR stability and commitment of private sector partners. When it did flex its muscles, on occasion, this was met with resistance from partners who felt that their needs and strategies would, if bending to Mercy Corps' will, be side-lined. In some instances, where the partner project is proving unprofitable, its sustainability is under direct threat.

Very much related, another major challenge for Mercy Corps is to meaningfully translate investments and activities into impact. As noted in the Introduction, the AgriFin Mobile final report recorded "100 percent success" along all output indicators but one. Indeed, in this report, investigators were able to record trainings, marketing plans and fruitful partnerships. But farmers continued to struggle to access basic features of key elements and benefits of the project and business models, and were limited in their capacity to get information and feedback around more dynamic events—like pest outbreaks, a heavy rain event or droughts. Further, they were limited in accessing affordable inputs, market information or even insurance pay-outs owed to them. These last examples are direct benefits that are at the essence of project deliverables and goals. As noted throughout, despite the predominance of women in rural, smallholder agriculture, there was limited evidence of substantive impact.

Of course, moving the needle on complex goals, under complex circumstances, takes sustained time and effort. This report concludes that, across the board, a foundation has been built atop which more meaningful results can still be pursued, and achieved, yet.

Recommendations

The following recommendations are largely pointed at implementing country offices, but can be supported by donors and Mercy Corps systems more generally:

Effectiveness

- Work with partners, and distribute budget accordingly, to ensure adequate training of farmers with tools and platforms.
  - Consistently, a binding constraint was low farmer interactivity with platforms, and weak knowledge of options and menu services. Empowering and leveraging trusted and knowledgeable field agents will further assist in this process.
- Work with MNO and other appropriate partners to enhance reliability.
  - Low interactivity was further compounded by weak networks and buggy applications. Over the course of one week in Zimbabwe, for example, researchers were unable to register on EcoFarmer despite dozens of attempts.
- Ensure well-trained agents and solicit them for information.
  - Agents are trusted sources of information among farmers, and keen observers of local context. They can and should be folded into the process in a way that provides field offices with up-to-date and accurate information of challenges on the ground.

Sustainability

- Allocate more time and resources to prepare partners for the transition/programme end.
  - In Zimbabwe and Indonesia, especially, critical elements of the implementation process have gone dormant without active Mercy Corps involvement and leadership. This was likely foreseeable and might have been mitigated.
- Seek opportunities for timely, strategic investments in small companies.
  - The Uganda partners appear most poised for long-term growth, and effective bundled RAS, even if scale is small comparatively. While possibly counterintuitive, a more “hands-off” approach let these companies arrive at bundled RAS when timing was more appropriate for them.
  - Mercy Corps investments had comparatively the largest impact on these companies, versus large MNOs or banks with competing programmes.

Impact and Efficiency

- Despite complaints from private sector actors around reporting requirements, there must be more consistent oversight of the implementation process itself.
  - Great individual efforts, or designs on paper, were routinely undercut by poor implementation and inconsistency (like of trainings, or of the remote advisory services that remain a key piece of EcoFarmer, but which were inadequate in their capacity and availability).
- Enact recurring gender mainstreaming reviews.
  - There were gender-inclusive outcomes, but they were atomistic and even accidental.
  - There was little indication of targeted, purposeful or effective programming to treat barriers to women’s participation in household finance, nor for women to more directly benefit from enhanced agriculture productivity.

8.0 APPENDIX

Table 7. Count of Bank Mandiri e-Cash Agents

Item	Malang*	Aceh Tenggara	Pulau Lombok	Banyuwangi**	Total
Number of e-Cash agents	15	2	5	3	25

Data provided as of November2017

Table 8. e-Cash activity records from Malang

Agent Transaction

No	Agent	Cash In	Cash Out
1	Anik Urrohma	317	3
2	Imam Kholid	464	-
3	Riyanto	3	-
4	Rizki Fitriana	334	1
5	Saudah	4	2
6	Sutaji	-	4
7	Tias Dewi Ratih	5570	83
8	Makhrus Ali	-	-
9	Endang Tri Puji astuti	-	-
10	Mufid Wahyudi	-	-
11	Ali Nuryafan	1	1
12	Winarti	-	-
13	Titik vinda Riwayati	-	-
14	Sujiono	-	-
15	Yunkinun	65	-
Total		**6758**	**94**