



Building Bridges to Laputta

Case Study on Market Access for
One of Lower Myanmar's Most Isolated Townships
June 2020



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Mercy Corps is a global team of humanitarians, working together on the front lines of today's biggest crises to create a future of possibility, where everyone can prosper. Our mission: to alleviate suffering, poverty, and oppression by helping people build secure, productive, and just communities. Since 2008, Mercy Corps has been working to bring about sustainable peace, stability, resilience, and inclusive economic growth in Myanmar.



The Livelihoods and Food Security Fund (LIFT) is a multi-donor fund set up in 2009. LIFT aims to strengthen the resilience and sustainable livelihoods of poor households by helping people to reach their full economic potential. This is achieved through increasing incomes, improving the nutrition of women and children, and decreasing vulnerabilities to shocks, stresses, and adverse trends.

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DISCLAIMER

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Executive Summary

When the Myaungmya Suspension Bridge collapsed in April 2018, it was just one more obstacle for the residents of Laputta Township in the Ayeyarwady Region, Myanmar. Sadly, these communities are accustomed to challenges. Laputta is one of the poorest and most isolated townships in lower Myanmar. Its labyrinth of saltwater rivers makes it not only challenging to transit, but also extremely vulnerable to climate change and severe weather.

Mercy Corps began working in Laputta Township following the devastation of Cyclone Nargis in 2008. In 2016, Mercy Corps and its partners received funding from the Livelihoods and Food Security Trust Fund (LIFT) to implement the Linking Laputta to Markets (LLM) project, targeting 3,700 smallholder rice farmers and 1,560 landless residents.

LLM's two complementary components aimed to increase vulnerable people's incomes and resilience. For smallholder rice farmers, LLM created and supported 77 farmer groups to increase productivity, market access, and use of improved inputs/services. For landless populations, LLM provided job training and linked graduates with employment opportunities.

The rice value chain component of the project generated an economic rate of return of 8.3% over a project period of four-and-a-half years. Farmers earned an additional \$2.3 million and market actors (millers, traders, and companies) an additional \$1.6 million in profits. Income gains were created by forming farmer groups and supporting them to adopt productivity- and resilience-improving practices, business models, and technologies. The project linked farmer groups to market actors through interventions in contract farming, certified seeds-on-credit, and crop insurance. Interviews with 31 people involved in the project revealed the following key lessons learned:

- 1. Farmer groups create an inclusive platform to launch market interventions.** The building of farmer groups was time-consuming and costly. However, the trust established during the process helped to initiate new business models with market actors. Su Paung Aye Yar, the township-level farmer organization, has the potential to replace Mercy Corps as a market facilitator.
- 2. High-quality paddy seed is a catalytic opportunity.** Farmers' use of high-quality, certified paddy seeds can increase yields by 5-15%, generating an additional profit of up to \$25 per acre. Demand is rapidly increasing, and supply is currently insufficient.
- 3. Great partnerships lead to more great partnerships.** One impactful partnership with Golden Sunland led to a constellation of partners providing services to fill the unmet needs of farmers. The impact on farmers increased with the broadening array of services offered by the partnership: credit, inputs, and mobile phone advisory services.
- 4. Many market actors need financial support to de-risk new activities.** The project primarily used soft incentives like advice, linkages, and the introduction of new business models. Providing financial support, in order to de-risk market actors' investment, could amplify the results of successful interventions.





Author
Drew Johnson

Edited by
Mercy Corps

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Introduction

On 1 April 2018, the Myaungmya Suspension Bridge collapsed, killing two people and severing an important transport link. The bridge connected Yangon, Myanmar's main economic hub, with several locales in the southern Ayeyarwady Delta, including Laputta, a small town known for rice and crab farming. Driving the 250km from Laputta to Yangon would now take an additional four hours and require two car ferries.

Laputta Township, where the town is located, can rightfully claim to be one of the most isolated places in lower Myanmar. There is only one road connecting the surrounding region to the main town. From there, 300,000 residents rely on small boats to navigate the large network of brackish rivers that stretch across the township. Thousands of paddy fields dot the low-lying terrain until it reaches near the Sea of Andaman, where the tidal flows make the water too saline for anything except salt farming or fishing.

Climate change has affected the livelihoods of Laputta residents for many years, and future predictions are dire. By 2050, the township may face an average temperature increase of 2.3°C, disruptions to rainfall patterns, and greater vulnerability to severe storms. Perhaps most concerning is the predicted 40 cm increase in sea level that will displace populations, reduce potable water, and make agriculture nearly impossible due to ground salinity. Agriculture is the primary source of income for nearly 50% of the township's residents, but the entire sector may not be viable in the future (United Nations Habitat, 2016).

In Myanmar, 39% of rural-dwelling people live below the poverty line—nearly three times the rate in urban areas (Ministry of Planning and Finance, World Bank Group, 2017). One reason for this disparity is that farm productivity is among the lowest in Southeast Asia (World Bank, 2016). Another factor is the lack of a competitive marketplace due to the challenging business climate—Myanmar is ranked 170 out of 191 on the ease of doing business index (World Bank, 2018). With its geography and history, Laputta Township is emblematic of these challenges.

Mercy Corps, along with several other NGOs, began working in Laputta Township after Cyclone Nargis ravaged the area in May 2008. Laputta was the hardest hit township in Myanmar—an estimated 80,000 people died during the storm surge and subsequent disease outbreaks (Tripartite Core Group, 2008). Mercy Corps' work in Laputta started as a humanitarian response, but rapidly shifted to a focus on longer-term, economic development.



Figure 1 - Laputta Township, Ayeyarwady Region

Project Overview

Linking Laputta to Markets (LLM) was a nearly five-year project, funded through a \$5.2M grant from the Livelihoods and Food Security Trust Fund (LIFT), a multi-donor trust fund with the aim of strengthening the resilience and livelihoods of Myanmar's people.¹ The project was implemented by a consortium of three organizations: Mercy Corps, Swisscontact, and Ar Yone Oo Social Development Association.

There were two distinct components of the LLM project. The first targeted improving the incomes of 3,700 smallholder households growing rice, while the second sought to improve the income of 1,575 landless and vulnerable households through skills training.² Undergirding the project's income goal was a wider set of metrics for yields, farmer group performance, and employment. Under the smallholder rice farming component, Mercy Corps and Ar Yone Oo carried out two reinforcing workstreams: farmer grouping and market development. This case study focuses on the market development aspects of the rice value chain component.



Figure 2 - Project overview, components and targets

Rice farming in Laputta exhibits nearly all the key issues that make Myanmar farmers' productivity and profitability among the lowest in all of Asia (World Bank, 2016). Farmers lack education and training, rely on inadequate inputs, and lack access to investment capital. Market structures are fragmented, uncoordinated, and bereft of value addition services. In Laputta, these issues are exacerbated by salt intrusion, labor migration, climate change, and high-transaction costs due to the geography of the delta. Communities lack basic infrastructure and are susceptible to shocks and stresses. LLM aimed to address these main challenges through its project interventions.

¹ LLM started on 1 October 2015 and concluded on 30 June 2020.

² For skills training and job placement, LLM targeted villages with the least productive farmland as these areas are projected to degrade further due to rising sea levels and salinity.



LOW PRODUCTIVITY

Farmers do not use **certified seed**, know little about their **soil**, and struggle with **pest and disease** outbreaks

Extension services, from private companies or public agencies, are nearly **non-existent**

Climate change and **saltwater intrusion** are decreasing farmer yields



WEAK MARKETS

High transaction costs to do business due to **costly and limited transportation** on small boats

Lack of market players offering services beyond Laputta Town

Limited investment opportunities and market dynamism



HIGH VULNERABILITY

Very **low access to basic services** and infrastructure

Devasted by Cyclone Nargis, still **extremely susceptible to extreme weather** due to low-lying land and climate change

Low levels of education and access to **few employment opportunities**

Figure 3 - Challenges faced by Laputta rice farmers

“The market is like a chain of dominoes. Everyone’s well-being is connected” - Zar Zar Aung, Input Seller



Agriculture is the primary income for 50% of Laputta residents. Mercy Corps worked with 3,950 smallholder rice farmers during the project.

Project Results

Project Total

In total, the rice value chain component of LLM created a net income benefit of \$3.9M, yielding an economic rate of return of 8.3% from LIFT’s investment of \$2.9M. The total increase in farmer income due to programmatic activities was \$2.3M and that of market actors was \$1.6M (see impact table for details).³ However, these totals do not include data from several seasons, as farmer-level data on yields and income was only collected three times: at the start of the project (baseline), halfway through the project (midline), and near the end of the project (endline).

Farmers

LLM’s rice value chain component reached 3,950 smallholder farmers (2,529 men, 1,421 women) with an average land size of about 11 acres through its combined approach of farmer groups and market access interventions.⁴ Project staff measured results based on farmers’ adoption of key practices, productivity, and income change among a randomly selected group of farmers at baseline, midline, and endline.⁵

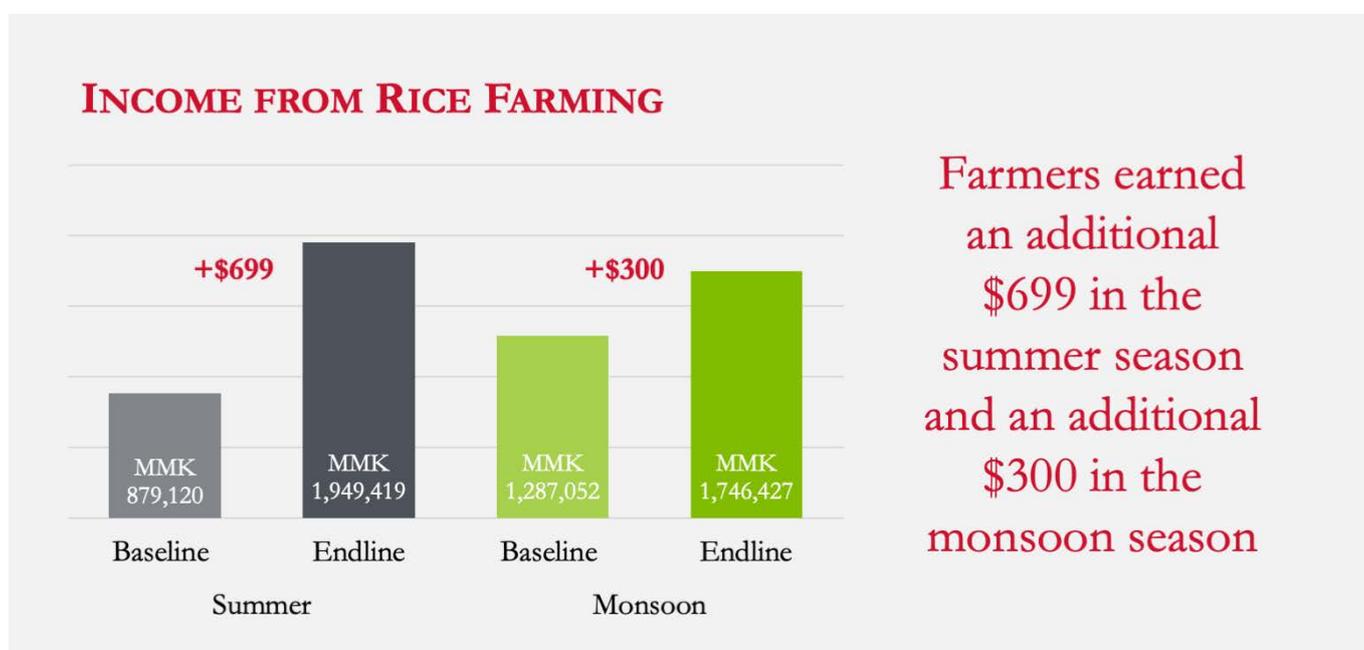


Figure 4 - Income change

At the endline, farmers earned an additional \$699 in the summer season (122% increase) and \$300 in the monsoon season (33% increase). Total aggregate farmer income increased by \$2.3M over the course of the project. However, this likely underestimates total income change, as income data was not collected for four of the eight seasons that the project supported farmers.

³ Data from Mercy Corps program monitoring and surveys with farmers and market actors. Economic rate of return calculated using method described by the Food and Agriculture Association (FAO).

⁴ The program target was 3,700 farmers. Of the 3,700 reached, 2,987 received support through groups and 963 received support outside the group structure.

⁵ Baseline in June 2016 with 766 farmers; midline in October 2017 with 295 farmers; and endline in December 2019 with 398 farmers.

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Average yields increased by 649 kgs per acre during the summer season and 146 kgs per acre during the monsoon season.⁶ For the summer growing season (December to May), average yields per acre increased from 1,087 kgs at baseline to 1,736 kgs at the endline survey (over three seasons), an increase of 60%, although only about 35% of Laputta farmers grow during the summer season. There were ups and downs over the course of the project. Early rains and flooding during the 2017 summer season decreased yields by an average of 167 kgs per acre.

All rice farmers grow during the monsoon season from June to November and, during this season, average yields per acre increased from 878 kgs at baseline to 1,024 kgs at the endline survey (over four seasons), an increase of 17%. The smaller increase is because it is more difficult to improve monsoon productivity as the growing area is larger and less productive due to salinity. In addition, practices such as alternate wet and dry irrigation and application of balanced fertilizers cannot easily be applied due to flooding.

Mercy Corps and Ar Yone Oo supported farmers to adopt productivity- and resilience-improving practices. For example, farmers increased their use of high-quality seeds⁶ (29 percentage point increase) and practice of alternating wet and dry irrigation during the summer season (43 percentage point increase). Farmer groups adopted good storage practices through the group storage model,⁸ which increased quality and price as farmers were able to wait for better market conditions.

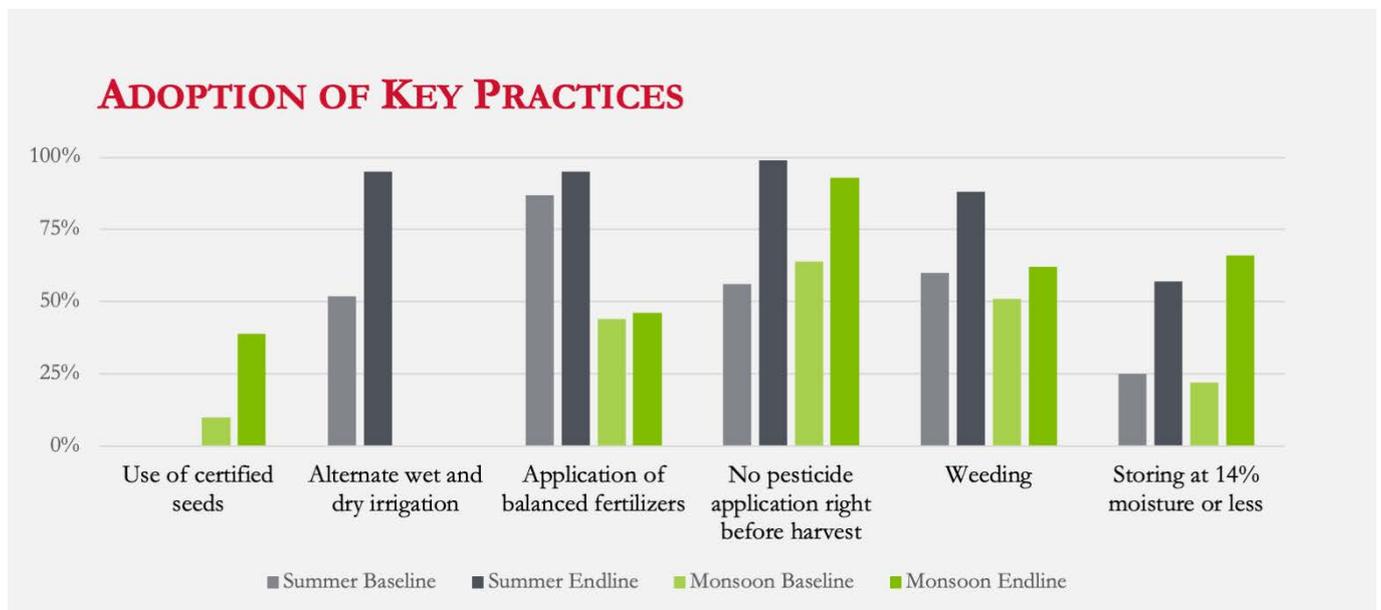


Figure 5 - Adoption rates of key practices

Farmer groups retained \$199,000 (\$2,580 per group) in earnings over the project. Retained earnings are farmer group savings minus any dividends to farmer group members. Earnings come from farmer group services such as paddy storage, bulk input purchasing, and machinery rental. Group retained earnings are used to finance activities such as loans, paddy purchase and storage, and equipment purchases.

⁶ Laputta rice farmers harvest twice per year: in April (summer season) and in November (monsoon season). No income data is available for the monsoon 2017, summer 2018, and monsoon 2018 seasons. About 35% of Laputta farmers grow in the summer season, while 100% grow during the monsoon season.

⁷ High-quality seed is a generic term used through this case study. It includes hybrid seed used by farmers contracted with Golden Sunland and certified seed provided by the Department of Agriculture.

⁸ Farmers collectively store paddy in a local warehouse that is managed by the farmer group. Farmers can sell their paddy later in the season when prices are generally higher.

Market Actors

The market development aspect of the project (discussed below) aimed to create market changes (such as contract farming, seeds-on-credit and crop insurance) that benefited smallholder farmers and market actors—millers, traders, brokers, and input providers. Win-win scenarios develop shared incentives that allow changes to be sustained, adapted, and scaled. For instance, contract farming improves farmers' productivity through better input access and usage, as well as a secure market with a set market price, while market actors, such as millers, gain a guaranteed supply.

In total, the project worked with 53 market actors to create a net income benefit of \$1.6M. Total income benefit was calculated through ongoing project monitoring and interviews with market actors to confirm profit margins.⁹ The total income is likely undercounted, as additional miller profit from increased yields is unavailable for three seasons.

In terms of economic benefit, the project's contract farming partnerships with five market actors exceeded that of the other interventions. Golden Sunland's premium market access, as well as local millers' profit margins, led to large increases in profit (see the contract farming section below for more detail). Benefits from market interventions increased during the second half of the project because partnerships took time to form and scale.

⁹ Mercy Corps collected data through program monitoring and end-of-project interviews.

Impact Table

		2015	2016	2017	2018	2019	2020	Total
FARMERS								
Summer	Average yield increase (kg/acre)	NA	Baseline established	-167	No data	649	No data	\$695,784
	# of farmers			332		1,085		
December to May	Average Income Increase/farmer (\$)			-\$209		\$699		
	Total Income change (\$)			-\$69,379		\$765,163		
Monsoon June to November	Average yield increase (kg/acre)	Baseline established	63	No data	No data	146	NA	\$1,445,346
	# of farmers		1,579			2,960		
	Average Income Increase/farmer (\$)		\$353			\$300		
	Total Income change (\$)		\$557,753			\$887,593		
Group retained earnings			\$40,346	\$40,842	\$40,940	\$47,521	\$29,570	\$199,220
Farmers subtotal			\$598,098	-\$28,537	\$40,940	\$1,700,278	\$29,570	\$2,340,350
MARKET ACTORS								
Contract farming		-		-	\$41,871	\$413,418	\$795,330	\$1,253,647
Seeds on credit		-	\$3,096	\$3,763	\$4,021	\$5,260	\$1,841	\$17,981
Insurance		-		-	\$0	\$0	No data	\$0
Su Paung Aye Yar		-			-	\$1,668	No data	\$1,668
Fertilizer on credit		-	\$2,042	\$10,544	\$12,592	\$33,173	\$14,767	\$73,118
Miller profits from increased yield		-	No data	-\$49,883	No data	\$292,145	No data	\$242,262
Market actors subtotal		-	\$5,138	-\$35,576	\$58,483	\$748,693	\$811,938	\$1,588,676
Total		-	\$603,236	-\$64,113	\$99,424	\$2,448,971	\$841,508	\$3,929,027

Notes

- All values are calculated relative to the project baseline
- Average yearly exchange rates are used to convert from Myanmar Kyat to USD (\$).
- Not applicable (NA) refers to times before or after the project period.
- No data refers to data that was not collected during the project, no estimates are used.
- Dash (-) refers to a year before the start of the intervention—e.g., contract farming intervention did not start until 2018.



"My ambition is to give it my all and present farmers' well-being"

Khin Hta Win, Farmer and Su Paung Aye Yar Representative



"Because of Mercy Corp, many opportunities opened up for me. I am always thankful for that." - Hla Ye, owner of Taing Win Rice Mill

Project Approach

Within the rice value chain portion of the project, Mercy Corps and Ar Yone Oo concentrated its efforts on three interlinked intervention areas: farmer groups, market development, and policy and advocacy. Ar Yone Oo led on the farmer groups portion, while Mercy Corps was fully responsible for development and policy/advocacy. While the case study will focus on market development activities and results, it is first useful to discuss the farmer grouping, as this played an important, foundational role for all other project activities. It was also the largest investment by the project, estimated at 15% of the rice value chain's total budget of \$2.9M.

Farmer Grouping

The farmer grouping portion of the project created 77 farmer producer enterprises (FPEs),¹⁰ small groups of 20-30 members from the same village or village tract. Collective farmer actions through FPEs aimed to lower farmers' transaction costs associated with accessing market services and to develop new, sustainable services operated by the FPE. High-performing FPEs, those practicing good governance as defined through a project index,¹¹ received investment funds (an average of \$5,000) to "jump-start" their business and provide capital for paddy storage/trading, bulk purchase of inputs, and establishment of a revolving fund among group members.

While this study focuses on the market development portion of LLM, FPEs provided the foundation from which the project was able to approach market actors. In fact, market actors cited the development of stronger relationships with a large number of farmer groups as the top reason for working with the project.

Farmer Producer Enterprises

High transaction costs are one of the biggest challenges of working in Laputta Township.

Traveling to town might take up to three hours, even when waters are calm. Market actors refuse to come to the village unless there is a substantial business opportunity.

Farmer producer enterprises create economies of scale. Through the group, farmers can buy inputs at discount, store paddy, and jointly sell. Groups also serve as a mechanism for information exchange and coordination.

Market Development

The market development portion of the project aimed to create systemic changes that increased farmers' incomes and resilience. This was done by analyzing the rice market system and then partnering with market actors on specifically targeted project interventions. Through these interventions, the project provided four types of support: linkages, business models, advice, and risk-sharing. Project interventions aimed to change the behaviors of market actors (e.g., begin contract farming arrangements) in order to benefit smallholder farmers. Desired behavior changes were intended to be mutually beneficial, so that market actors would continue embracing these interventions even after project support ended and that other, non-project supported market actors would take up the change.

Mercy Corps assessed the rice market system from inputs to consumers and then identified areas

¹⁰ 46 FPEs were created during the previous LIFT-funded project from 2012 to 2015. Mercy Corps and Ar Yone Oo continued to support these groups, while also adding farming groups, during LLM.

¹¹ Mercy Corps scored farmer groups based on their adoption of governance principles: establishing a business plan, conducting regular meetings, keeping financial records through an established system, having a bank account with two signatories, etc.

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of opportunity where market changes would increase farmer incomes and resilience. This holistic approach uncovered a large number of actors—including traders, millers, policy markets, and the Department of Agriculture—that impacted farmers' livelihoods, even though many of them had no direct interaction with farmers. For example, in the past, larger traders would buy from middlemen, rather than from farmers. The project team targeted these traders during the analysis period to understand their requirements and priorities, with the ultimate goal of linking them directly with farmer groups during implementation.

Project support can be grouped into four categories: advice, business models, linkages, and risk-sharing. These were combined in different ways to form project interventions (see the following section). LLM used financial support to de-risk market actors' investment into pro-poor business changes; however, this was a minor component compared with typical market system development programs (less than \$40,000).

Market actors were sometimes hesitant to partner with the project, which required changes in business practices, because it offered nearly no financial support. Project staff had to build relationships with and convince market actors to adopt project initiatives—e.g., trialing the seeds-on-credit model or bringing a boat to the village to buy paddy. These requests pushed market actors to operate outside of their respective “comfort zones.” It also meant slower progress, since market actors wanted to see the results from a smaller-risk project before investing more time and effort.

Unsurprisingly, profit was the main motivating factor for market actors to work with the project. Beyond profit, market actors cited the opportunity to build a closer relationship with farmers as a secondary motivation. Lastly, many project partners felt compelled by a social imperative. This sentiment was especially strong for Golden Sunland and local traders, who are also farmers themselves.

Market Interventions

The Mercy Corps team combined four types of project support (linkages, models, advice, and risk-sharing) into project interventions. Each intervention had a set of objectives tied to the project’s results framework (i.e., measurement plan).

Project Support	Description	Examples
Advice	Share information and provide technical assistance to market actors	Sharing farm economics data with Global World Insurance and Golden Sunland to hone their operation and business models Supporting millers to apply for grant/loan financing for new machinery
Business models	Identify, test, and scale improved business models that increase the incomes and resilience of smallholder farmers	Seeds-on-credit model where millers/trader provide one basket of seeds for two baskets of grain at harvest Fertilizers on credit from millers and traders to farmer groups
Linkages	Create connections and build trust among and between farmers and market actors by providing introductions and networking services	Trip to Mandalay for traders and millers to create new business linkages Introducing millers, traders, and input suppliers to farmers groups for contract farming Sponsor visits and trips for market actors to make linkages
Risk-sharing	Decrease risk for farmers and market actors by guaranteeing or subsidizing the cost of activities (less than \$40,000)	First loss guarantee of \$25,000 for Daung Capital to provide value chain finance to 75 farmers (~\$300 spent) Cost-share for farmers to buy crop insurance for the first time (~\$200 spent)

Below, three of the project’s most important interventions are analyzed; other interventions are summarized. For the three major interventions, the Springfield Centre’s Adopt-Adapt-Expand-Respond framework is used to assess whether the market changes promoted by the project may be sustainable and scalable. In this context, “sustainable” refers to whether behavior changes are adopted and owned by the relevant market actors, while “scalable” refers to whether other market actors will adopt the changes without project support (Nippard D., Hitchins R., Elliott D., 2014).

MARKET DEVELOPMENT

Value chain improvements to benefit farmers



PROJECT INTERVENTIONS

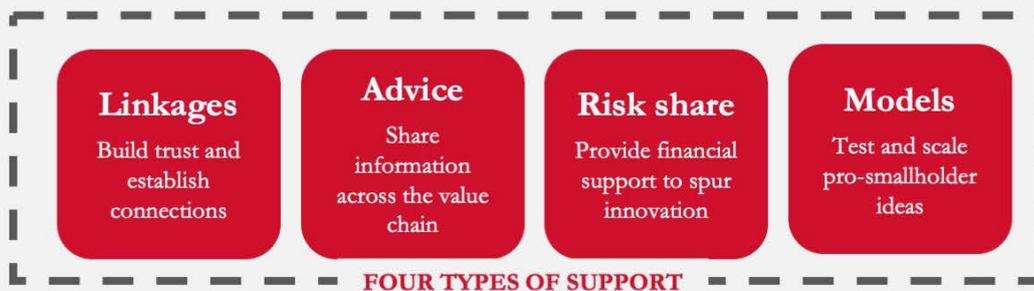


Figure 6- LLM's market development approach

LINKING LAPUTTA TO MARKET'S PROJECT

Goal: Increase the incomes of 5,275 landless, vulnerable and smallholder households

RICE VALUE CHAIN

\$2.9M project budget

Components

- Farmer groups (FPEs)
- **Market development**
- Policy and advocacy



Targets

- 3,700 farmers
- 30% women



SEMI-SKILLED JOBS

\$2.3M project budget

Components

- Skills training
- Intern & job placements



Targets

- 1,575 people
- 50% women



The case study will focus on the **market development** activities which aimed to create sustainable, pro-poor market changes.

Figure 7 - Market change framework

A photograph of a tropical village scene. In the foreground, a tall, slender palm tree trunk stands prominently. The background is filled with numerous other palm trees of varying heights. Several traditional huts with thatched roofs are visible, some with white tarps covering parts of their roofs. A dirt path winds through the village, and a group of people can be seen walking in the distance. The sky is overcast and grey.

“Starting operations in Laputta was a leap of faith, but we had confidence because of our partner Mercy Corps. We embrace opportunities to build upon Mercy Corps’ good work over the years and also demonstrate the potential for sustainable impact from meaningful partnerships between NGOs and the private sector.”

David Chen
CEO, Golden Sunland

Intervention 1: Contract Farming

Desired behavior change: Farmers and millers enter fixed-price contract farming arrangements, including inputs on credit, so that farmers increase productivity and receive a higher, secure market price.

Project support: Advice, linkages, models, risk-sharing

During the second half of the project, Mercy Corps developed fixed-price contract farming arrangements between farmer groups and market actors. The purpose of this intervention was to improve farmers' productivity through better input access and usage, as well as to secure a market with a set price. 374 farmers established contracts with five companies: Golden Sunland, a Singapore rice company, and four local millers.¹²

Fixed-price contract farming (i.e., setting a fixed purchase price at the time of planting) was a completely new concept in Laputta and is still rarely used in Myanmar. To introduce the concept in Laputta, Mercy Corps worked with government authorities, millers, and farmers to build understanding on how the model operates. This was done over several seasons and leveraged farmer groups established earlier in the project. Mercy Corps connected farmers with millers and provided a small guarantee of \$0.33 per basket (~5-8%) on the market price in the first few seasons. The guarantee was developed so that market actors and farmers could still honor the contract without side-selling in case the market price increased beyond the price ceiling. The guarantee condition was never met, however, and this provided sufficient confidence and incentives for the millers to begin contract farming.

The LLM project helped Golden Sunland start operations in Laputta Township by connecting it with farmers and local government authorities. In 2018, the company conducted field trials using its hybrid rice variety. The results were promising and Golden Sunland quickly scaled up operations to include 48 contracted farmers in 2019 and 75 farmers in 2020. Golden Sunland's variety increases farmer yields by approximately 10%. As this variety has little demand from local consumers, Golden Sunland buys the entire harvest and sells it in Singapore and Yangon.

One innovation introduced by Golden Sunland was purchasing "wet" paddy from farmers within 24 hours of the harvest. Farmers take their paddy to Taing Win, a rice mill contracted by Golden Sunland, for drying. Farmers save labor costs by not having to dry their paddy. Milling yield, the percentage of sellable rice,¹³ and quality is also improved, since the paddy is dried in a fast, consistent manner.

Over the course of the project, Golden Sunland and Mercy Corps brought in other companies to complement the contract farming arrangement. Golden Sunland bought fertilizers and pesticides from Myanma Awba and then provided them to farmers on credit at an interest rate of ~2.5% per month. Daung Capital, a registered microfinance institution, provided working capital loans of ~\$100 per acre also at an interest rate of ~2.5% per month, channeled through Golden Sunland. Farmers repaid all outstanding credit at the time of harvest. Village Link provided weather

A PARTNERSHIP OF FIRSTS

Golden Sunland and its partners' contract farming intervention featured a number of firsts:

First time for...

- ▶ Laputta farmers to receive a fixed-price contract
- ▶ Golden Sunland to work in Laputta
- ▶ Daung Capital to finance agriculture
- ▶ A company to buy "wet" paddy from farmers
- ▶ Any of the partner companies to work together

¹² Three hundred and twenty three farmers were under contract for the most recent summer 2020 growing season.

¹³ Evidence suggests that the milling yield can be nearly doubled from 20% to 40% if paddy is dried to 14% moisture within 24 hours of harvest

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and agronomy advice to farmers through its Htwet Toe mobile application on Android. For each partnership, Golden Sunland acted as a conduit to the farmer, but did not take a profit margin (e.g., charging a higher price to farmers). These additional partnerships delivered relevant services and helped Golden Sunland deepen its relationship with farmers.

Farmers who have contracted with Golden Sunland earned an average of \$150 per acre more (an increase of approximately 40%) than they did when selling to local markets. This increase is due to the increased yield from an improved, hybrid seed variety and a higher market price, which Golden Sunland can offer because it has access to premium markets. Farmers also enjoy a secure market: Golden Sunland guarantees purchase of the entire harvest.

In addition to Golden Sunland, Mercy Corps also introduced the fixed-price contract farming model to four local millers, contracting with 258 farmers. Taing Win, a rice mill operated by U Hla Yee, is one of the early adopters of this model, and it also provides working capital loans (~\$40 per acre) to farmers. With the exception of Taing Win, the three other local millers were not willing to risk extending input and cash credit to farmers because Laputta farmers have a mixed history of repayment. These millers only set a fixed price, also confirmed in contracts like those of Golden Sunland, that they pay at the time of harvest. LIFT staff noted that the four Laputta millers are some of the only millers in the Ayeyarwaddy Region that employ a contract farming model.

Golden's Sunland's contract farming scheme is highly sustainable, while sustainability is less certain with the local millers. Golden Sunland will continue to expand in Laputta using the LLM-created farmer groups as the foundation for adding more contract farmers with a goal of reaching ~5,000 farmers by 2024. For the 2020 season, the company nearly doubled its contracts and now reaches 75 farmers (560 acres). The four local millers also are continuing contract farming, but they have less flexibility on pricing, as compared to Golden Sunland, due to the lack of a premium market.

In terms of scalability, there is limited evidence that other millers in the Ayeyarwady Delta are willing to adopt contract farming as of yet. This adoption will take time and require more support from development projects—it took Mercy Corps several seasons to establish the model with only a few millers. Local millers' lack of a premium market with a better price is a major inhibitor. One extremely positive sign is Myanmar Awba, Daung Capital, and Village Link's interest in working through other contract farming businesses (see Respond section of the table below). All of these businesses saw the advantages of having an "off-taker" partnership model that serves as a linkage to a large number of smallholder farmers. This is currently a small part of their business, but one that they are aiming to grow by identifying other agribusinesses like Golden Sunland.

Building Bridges to Laputta

Adopt	Adapt	Expand	Respond
<p>Golden Sunland expanded its contract farming to 75 farmers (560 acres) in Laputta for the 2020 summer season.</p> <p>Four local millers will continue offering fixed-price contracts to farmers, but without inputs on credit.</p>	<p>Golden Sunland built complementary partnerships and hired a Laputta-based team.</p>	<p>Another company, outside the delta region, is attempting to copy Golden Sunland's contract farming mode.</p> <p>It will be difficult for local millers to copy Golden Sunland's model, until they improve their access to higher value markets like Singapore.</p>	<p>Village Link will build more business-2-business features in its previously farmer-focused app to serve businesses using contract farming models.</p> <p>Daung Capital, Myanmar Awba, and Village Link are interested in expanding the "off-taker" model to provide capital and agriculture service through lead agribusinesses like Golden Sunland.</p> <p>Two millers in Laputta have purchased dryers necessary for centralized drying; previously only Taing Win had this equipment.</p>

Intervention 2: Seeds-on-Credit

Desired behavior change: *Traders and millers provide certified seeds, for low-cost credit, that improve farmers' yields and incomes.*

Project support: *Advice, linkages, models*

The use of high-quality seed can improve a farmer's yield by 5-15%. Despite this potential benefit, at the start of the project, only approximately 5% of Laputta farmers used certified seed due to limited supply and farmers' lack of knowledge as to its benefit. Mercy Corps devised a seeds-on-credit model, wherein traders and millers would provide one basket of seed, which covers two acres of planting, for two baskets of grain at harvest.¹⁴ Farmers also promised to sell back some of their harvested paddy to the trader/miller. A credit model, rather than cash payment, was used to allow farmers with less capital to benefit from this intervention.

Over the course of the project, more than 1,200 farmers (21% women) received high-quality seeds-on-credit through 39 millers and traders. Mercy Corps staff helped traders and millers access certified seeds and then linked farmers to those same actors for the credit model. Concurrently, in order to address the shortage of certified seed, the project helped 48 farmers (15% women) become certified seed producers who provided seed to the millers, traders, and Department of Agriculture, which oversees certified seed production and quality. Mercy Corps estimates that 30% of Laputta farmers are now using high-quality seeds.

The primary motivating factor for millers and traders' use of seeds-on-credit is the opportunity to build closer relationships with farmers in order to buy more paddy. The profit of the seeds-on-credit model, approximately \$1-4 per basket of seed depending on the variety, is not sufficient to cover the coordination costs and interest. Securing access to additional paddy purchases is more important because no millers operate at full capacity. One miller reported that about 70% of the farmers who received seeds-on-credit sold him their entire harvest.

It is likely that many of the participating millers and traders will switch from credit to cash-down. They view the task of tracking and following up with farmers as too difficult and time-consuming given the small profit margin. For them, a cash-down approach is easier. However, they are uncertain as to how this modification will impact paddy purchases from these same farmers.

In terms of the model's sustainability, the large number of farmers, millers, and traders adopting the model indicates significant buy-in. For farmers, the benefit is clear and demand is increasing due to better awareness. Millers and traders have mixed perspectives: some will continue the model, while others will adapt it by removing the credit aspect. Few traders appear enthusiastic about expanding the model to more farmers due to the high transaction costs and low profit margins.

The current seeds-on-credit model needs adjustments before it can reach scale. Market actors need to see more benefits in order to adopt the model. Transaction costs must also be lowered. One option could be for Su Paung Aye Yar, the township farmer organization set up by the project, to play a larger role organizing the seeds-on-credit model across Laputta township. An increase in seed prices could also be considered. Another option is to consider input shops as an alternate distribution channel for certified seeds. These shops often extend credit to farmers and could include seeds as a natural extension of their business.

¹⁴ 90-day variety seeds are ~\$8 per basket and grain is ~\$4.50 per basket. Pawsan variety seeds are ~\$9 per basket and grain is ~\$6.50 per basket.

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Adopt	Adapt	Expand	Respond
<p>Farmer demand for certified seed is higher due to greater awareness of its benefits.</p> <p>Certified seed producers have the necessary skills, knowledge, and market linkage, and they will continue producing.</p> <p>Some traders/millers will continue to offer seeds-on-credit, while others will stop because coordination is too cumbersome.</p>	<p>Several traders/millers will pivot to a cash-down model, rather than a credit model, in order to lower the coordination costs of managing credit.</p>	<p>Within the Ayeyarwady Delta, the seeds-on-credit market is expanding and becoming more dynamic as a result of LLM and LIFT's complementary seed project (Rice Seed Sector Development Project).</p> <p>The seeds-on-credit distribution model is promising, but needs to be tweaked as traders/millers who were not supported by the project will likely not see enough benefit to copy it.</p>	<p>Department of Agriculture is increasing its supply of registered seed to seed producers in Laputta.</p> <p>Department of Agriculture is improving its monitoring and inspection process with seed growers due to the growing importance of certified seed within the value chain.</p>

Intervention 3: Crop Insurance

Desired behavior change: *Insurers develop low-cost agricultural insurance that increases farmers' resilience to shocks.*

Project support: *Advice, linkages, models, risk-sharing*

Myanmar's farmers, especially those in Laputta, are extremely vulnerable to pest and disease outbreaks, droughts, and floods. Crop insurance that could protect against those risks has been historically unavailable in Myanmar. In January 2018, this changed when Global World Insurance, after waiting two years, received permission from the Insurance Business Regulatory Board to pilot a new crop insurance policy with farmers. Since agriculture insurance is not yet formally approved in Myanmar, the allowance was an exception with the intention to inform the government's new policies.

Mercy Corps helped Global World Insurance bring its crop insurance pilot to Laputta Township. This aligned well with the company's interest in piloting in multiple geographies to gather data for its actuarial models. Due to the nascent stage of insurance in the country, the purpose of the intervention was experimental: test insurance models in a delta region with saline intrusion in order to improve Global World Insurance or other companies' models. Myanmar's poorer townships, like Laputta, do not receive the same services as its richer ones, so including Laputta in the pilot was a positive step.

Over the course of the project, eight Laputta farmers purchased the yield-based crop insurance for about \$3 per acre, or approximately 2% of the total revenue from that acre. Farmers purchased insurance to cover 100 acres—approximately 12 acres per farmer. The policy triggered if a farmer's yield per acre was less than 1,045 kg. If triggered, farmers would receive compensation based on how much yield was lost below 1,045kg per acre. LLM paid for 40 percent of the farmers' cost during the pilot period. No farmers had a yield drop sufficient to cause a pay-out during the project period.

Although this intervention was small scale, it represented an important first step towards the development of inclusive crop insurance. The pilot received interest from the Department of Agriculture, Myanmar Parliament, other market actors, and development partners like LIFT. Results were widely shared and raised awareness on the opportunities and challenges of crop insurance.

The pilot demonstrated that the offering is not scalable in its current form due to high monitoring costs, wide differences in yield, and difficulty in communicating with customers. Basis risk¹⁵ is also high, due to a paucity of weather stations and unreliable data. Global World Insurance and Mercy Corps' partnership also highlighted some issues that were more pronounced in Laputta, in particular the lack of land certificates and large variance in farmer yields due to saline intrusion. Due to the complexity of creating an insurance product for smallholders, the need to iterate was expected by all parties.

Global World Insurance is redesigning its crop insurance based on the results of the pilot in Laputta and other townships. It is planning to change from yield-based to incident-based insurance based on weather shocks

¹⁵ Insurance basis risk refers to when the measurements to assess loss do not correspond to the actual loss. Per the World Bank, there are two sources of basis risk: poorly designed products and geography. Product design must take into account relevant measurements through rigorous testing. Geography risk relates to the location of measurement (e.g., weather station) versus the location of the farmer's field (World Bank Group, 2020).

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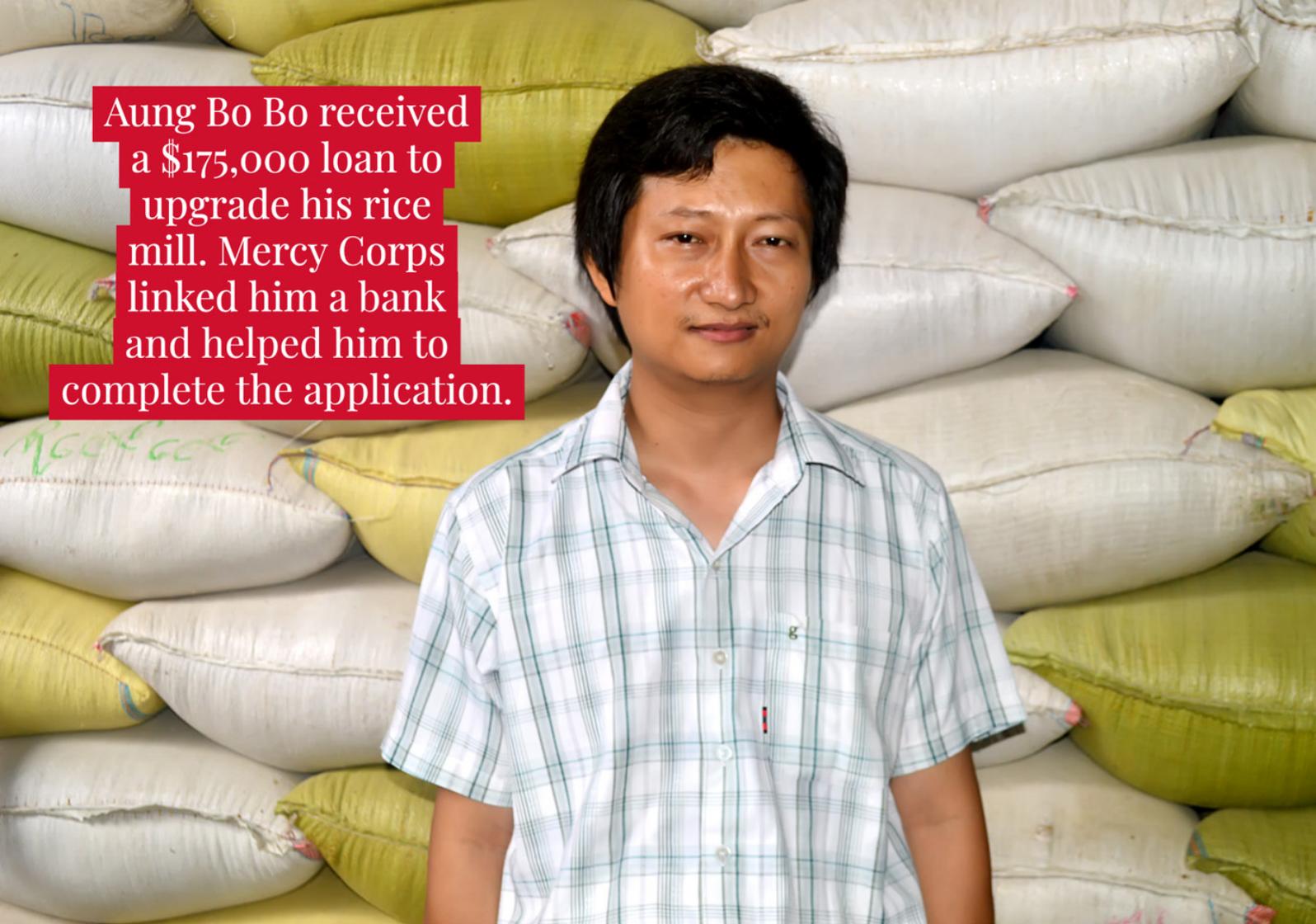
such as rainfall and wind. Part of this change requires bringing in new partners that can provide weather data. To address this gap, LLM has helped to facilitate discussion between Global World Insurance and Village Link, which has incorporated satellite data into its products. The new product will also have an automated claims and payouts feature to lower monitoring costs. Global World Insurance and its partners are still designing the new crop insurance product; a launch date had not yet been set at the time of this case study.

Adopt	Adapt	Expand	Respond
Global World Insurance plans to continue offering crop insurance.	Global World Insurance, Village Link, and Mercy Corps are designing a new insurance product based on learnings from the pilot.	Only one other company is offering crop insurance in Myanmar; the market remains underdeveloped.	Government staff, at both the Department of Agriculture and Parliament, have a greater understanding of crop insurance opportunities and challenges which are being incorporated into new insurance laws.

Other Interventions

Alongside the three priority interventions discussed above, Mercy Corps implemented a number of other interventions that leveraged the farmer groups established at the start of the project. These other interventions also tied into the project’s results framework. Many were created as adaptations in response to farmer groups, market actors, and government requests for support in specific areas. A brief description of other interventions is provided in the table below.

Intervention	Market Change	Project Support	Scale
Establishment of Su Paung Aye Yar Farmer Association	Create a township-level farmer association that can support the 77 project-created farmer groups, link with market actors, and advocate on behalf of farmers’ interests	Advice to register the association and training on LLM’s farmer group model and key interventions Linkages to market actors that have been coordinated by Mercy Corps Risk sharing (i.e., financial support) to open an office and hire one staff member	One group representative from each of the 21 village tracts \$1,688 earned in commission from \$40,000 in fertilizer bulk purchases
Fertilizers on credit	Link farmer groups directly with millers and traders to receive inputs on credit	Linkages between farmer groups and input suppliers Model introduced and promoted among input suppliers and farmer groups	\$500,000 in inputs on credit (six month term) from 1,061 farmers, resulting in \$73,000 interest income for market actors providing these services
Access to finance for farmer groups, traders, and millers	Increase financing for groups, traders, and millers for working capital or upgrading equipment (millers)	Advice to complete applications Linkages with financial service providers	75 farmers received loans as part of contract farming either through Daung Capital or the Taing Win mill One miller received a \$157,000 loan for mill upgrades Two millers received grant financing from a development partner



Aung Bo Bo received a \$175,000 loan to upgrade his rice mill. Mercy Corps linked him a bank and helped him to complete the application.



Farmers who sign a contract with Golden Sunland also receive inputs on credit (Awba), cash loans (Daung Capital), and mobile advisory services (Village Link)

Lessons Learned

Farmer groups created an inclusive platform to launch market interventions.

The work of LLM to create, train, and support 77 farmer groups was time-consuming and costly. Farmer groups were formed over two LIFT-fund projects and significant effort was expended building local ownership and capabilities. This investment paid dividends as farmer groups provided the on-the-ground platform that could link to the project's most important interventions—contract farming, seeds-on-credit, and crop insurance. The trust built during group formation allowed the project to introduce new business models and project partners. These groups also helped to drive benefits to more vulnerable farmers who were reluctant to participate in these new initiatives. While the group model needs to be tweaked in order to scale, it was invaluable for the market development initiatives.

Su Paung Aye Yar, the township-level farmer association formed by the project, should replace Mercy Corps in its role as a market organizer and connector. However, it is still establishing itself and needs technical support and a clear business case, which could be provided by Mercy Corps. The return on investment from market development activities suggests that Su Paung Aye Yar can be sustainable if it builds from the LLM model.

High-quality paddy seed is a catalytic opportunity.

Farmers' use of high-quality, certified paddy seed can increase yields by 5-15%, or an additional profit of \$25 per acre. Thanks to the LLM project, farmers are more familiar with the benefits of using high-quality seed. There is a growing market for seed production and distribution. The project's work on a seed-for-credit model shows promise in that it allows farmers to access seeds without additional investment. The current model is not yet attractive enough for market actors due to the coordination costs. A revised credit model or simpler seeds-for-cash model is preferred. As only an estimated 30% of Laputta farmers use certified seed (10% before LLM), there is a big opportunity for further investment.

Great partnerships create other great partnerships.

The project's work on contract farming started as an idea between Golden Sunland and Mercy Corps. It ended with a constellation of partners—Golden Sunland, Daung Capital, Myanmar Awba, Village Link, U Hla Yee—providing a host of services to contracted farmers. New companies joined to fill unmet farmer needs, identified through Golden Sunland, the lead organization. Each partner had a clear role that complemented the others. The project's investment in farmer groups and relationship building with local government authorities was necessary for the success of the Golden Sunland partnership.

Many market actors need financial support to de-risk new activities.

By focusing on linkages, models, and advice, the project took a conservative approach in its market development work. It rarely put "money on the table" to share risk with market actors. This conservative approach requires more time to gain traction. In some cases, market actors scaled down their ambitions because LLM would not provide guarantees or cost share. For example, one miller felt it was too risky to do contract farming because there was no guarantee available. Financial investment in high-performing interventions like paddy seed and contract farming could have amplified the project's results in these areas. However, this would have also required more risk tolerance from the donor and project team.

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