

LEARNING TOGETHER IN THE AYEYARWADY DELTA

Lessons and good practice
from LIFT's Delta Programme 2011-2014

Livelihoods and Food Security Trust Fund

The image displays a row of logos for the funding partners of the Livelihoods and Food Security Trust Fund. From left to right, the logos are: LIFT (a green map of Myanmar with the letters LIFT overlaid), UKaid (the Union Jack flag with the text 'UKaid from the British people'), the European Union flag (a blue rectangle with twelve yellow stars), Australian Aid (the text 'Australian Aid' with a red kangaroo silhouette), the Swiss Agency for Development and Cooperation SDC (a red cross in a white circle with the text 'Schweizerische Eidgenossenschaft / Confédération suisse / Confederaziun Svizra / Confederaziun Svizra / Confederaziun Svizra' and 'Swiss Agency for Development and Cooperation SDC'), DANIDA (the text 'DANIDA' with the Danish flag), USAID (the USAID seal with the text 'USAID FROM THE AMERICAN PEOPLE'), afd (the text 'afd' with 'AFRICAN DEVELOPMENT FUND' below it), GRAND DUCHY OF LUXEMBOURG (the coat of arms of Luxembourg with the text 'GRAND DUCHY OF LUXEMBOURG'), COOPERATION (a logo with the text 'COOPERATION'), and Irish Aid (the text 'Irish Aid' with 'Buidéal each-Gráim / Government of Ireland' below it).

This document compiles lessons and good practices that arose from implementation of the Delta 2 Programme, funded by the **Livelihoods and Food Security Trust Fund (LIFT)**.

The lessons were presented by implementing partners during Learning Alliance workshops held in Bogale and Yangon on 1st and 3rd October 2014 respectively. LIFT thanks its partners for sharing their knowledge and experience, and for shaping their learning into the chapters of this document.

Edited by U Htet Kyu

With Libera Antelmi-Dazio and Shagun Gupta

ACKNOWLEDGEMENTS

We thank the European Union and governments of Australia, Denmark, France, Ireland, Italy, Luxembourg, the Netherlands, New Zealand, Sweden, Switzerland, the United Kingdom, the United States of America for their contributions to improve the livelihoods and food security of rural people in Myanmar. We would also like to thank the Mitsubishi Corporation as the Fund's private sector donor.

DISCLAIMER

This document is supported with financial assistance from Australia, Denmark, the European Union, France, Ireland, Italy, Luxembourg, the Netherlands, New Zealand, Sweden, Switzerland, the United Kingdom, the United States of America, and the Mitsubishi Corporation. The views expressed herein should not be taken to reflect the official opinion of any of the LIFT donors.

Abbreviations

AAM	Action Aid Myanmar
ADRA	Adventist Development and Relief Agency
ASEAN	Association of South East Asian Nations
AVSI	Association of Volunteers in International Service
BCBC	Business Capacity Building Centre
CBI	Capacity Building Initiative
CSB	Central Seed Bank
CS	Certified Seeds
CSO	Civil Society Organisation
CCRF	Code of Conduct for Responsible Fisheries
CAEDP	Community Agro-Economic Development Platforms
CBO	Community Building Organisation
CLLSP	Community-Led Livelihood Related Social Protection
CDEC	Comprehensive Development Education Centre
DAR	Department of Agricultural Research
DoA	Department of Agriculture
DoF	Department of Fisheries
ECODEV	Economically Progressive Ecosystem Development
FFS	Farmer Field School
FPE	Farmer Producers Enterprise
FAATU	Farmers Advisory and Agriculture Testing Unit
FC	Fish Collectors
FDA	Fisheries Development Association
FAO	Food and Agriculture Organisation
FUG	Forest User Group
GAD	General Administration Department
GRET	Groupe de Recherches et d'Echanges Technologiques
HP	Hire Purchase
IP	Implementing Partner
IPM	Integrated Pest Management
VG-SSF	International Guidelines on Securing Sustainable Small-Scale Fisheries
IRRI	International Rice Research Institute
IC	Inventory Credit
ID	Irrigation Department
LA	Learning Alliance
LEAD	Link Emergency and Development
LIFT	Livelihoods and Food Security Trust Fund
MSN	Mangrove Service Network

MIS	Market Information System
MC	Mercy Corps
MFC	Microfinance Centre
MDG	Millennium Development Goal
MSVS	Multi-stakeholder Variety Selection
MMSE	Myanmar Microfinance Supervisory Enterprise
MADB	Myanmar Agricultural Development Bank
MBCU	Myanmar Baptist Churches Union
MFF	Myanmar Fishery Federation
MMK	Myanmar Kyat
MNN	Myanmar NGO Network
NAG	Network Activities Group
NGO	Non-Governmental Organisation
PGMF	Pact Global Microfinance Fund
PLA	Participatory Learning and Action
PRA	Participatory Needs Assessment
PFS	Purchase Finance Systems
SHG	Self Help Group
STL	Sin Thwe Latt
SEED	Socio-Economic and Environmental Development
SCALE-UP	Sustainable Community Alternative Livelihood Enhancement to Undermine Poverty
THY	Thee Htat Yin
TDSC	Township Development Support Committee
VDC	Village Development Committee
VRF	Village Revolving Fund
VVG	Village Vegetable Group
WRS	Warehouse Receipt System
WRUD	Water Resources Utilization Department
WHH	Welthungerhilfe

Table of Contents

Executive Summary.....	5
Introduction	6
Section 1: Agricultural Production and Post-Harvest Management.....	8
Proximity Designs: Paddy Double Cropping (cultivating two paddy crops per year) in Brackish and Saline Water Intrusion Areas	8
IRRI: The Post-Harvest Learning Alliance.....	15
Radana Ayar: Rice Quality Seed Production and Marketing	19
Ar Yone Oo/ Mercy Corps/ LEAD: Winter Crop Cultivation in Labutta.....	27
Section 2: Integrating farmers in the rice value chain	32
WHH/GRET: Purchase Finance System and Inventory Credit	32
Pact: Credit for Delta Farmers	39
Mercy Corps/WHH: Upgrading Village-Based Rice Mills: How to Make Benefits Trickle Down to Farmers	43
Mercy Corps: Contract Farming in the Delta	52
Section 3: Turning Income Generating Activities into Profitable Business.....	57
ADRA: Introducing Mangrove Friendly Aquaculture in Labutta.....	57
Thadar Consoritum: Home Gardening and Eel Farming Models	61
Mangrove Services Network: Fuel Efficient Stove Production and Marketing in the Delta	68
Network Activities Group: Improving Fishery Governance System in Delta	74
Section 4: Organising collective services	82
GRET: Hire Purchase Schemes	82
WHH: Village Revolving Funds Allow Poor Villagers to Access Cheap Loans	93
AVSI: Formation of Agriculture Cooperative Associations	99
Annex: Questions Raised During Learning Alliance Workshop Presentations.....	104

Executive Summary

The Livelihoods and Food Security Trust (LIFT) Fund began operations in Myanmar's Ayeyarwady Delta in 2010, with a one-year livelihoods rehabilitation programme after Cyclone Nargis. The programme was extended in 2011, with three-year projects under Delta 2. The Delta 2 Programme intended to build a more integrated approach to improving smallholder farmers' productivity and promoting development activities with a longer term focus. Most the projects were granted an additional year cost- extension to consolidate results.

The purpose of this report is to share the experiences of LIFT's partners in the implementation of their projects during Delta 2. The report presents lessons shared at a series of workshops organised by LIFT in October 2014, focusing on agricultural production and post-harvest loss reduction, integrating farmers in the rice value chain, making income generation activities profitable, organising collective services. Participants also shared their experience of hire-purchase models, market price information and agricultural finance.

These lessons have weighed in to the development of LIFT's Delta 3 Programme.

The agriculture sector is dynamic in the Delta with investments in value chain development increasing, large investment in the milling and agricultural input sector, and the development of small and medium enterprises. LIFT activities aim to include small holder farmers in the rice value chain. Partners are now building on experience from seed production and multiplication; links are being developed between small holder farmers and millers, and village revolving funds are being used to promote off-farm livelihoods options.

Some of the key lessons highlighted in this report include:

1. Access to finance has increased considerably in the Delta with LIFT support, along with an increase in in MADB loans and the recent expansion of cooperative loans in most villages.
2. Obstacles to small holder farmers in the rice value chain include limited investment capacity; inadequate access to technology and quality inputs; weak market integration and agricultural services; and little or no space for horizontal linkages and synergies among farmers.
3. Extension services and the availability of finance are key factors to increasing productivity as farmers move from low to high input-output systems.
4. Contract farming can stimulate access to production factors and has a role in strengthening relationships between farmer groups, rice millers, and input traders.
5. Post-harvest technology and practices play a key role in maintaining seed quality and reducing losses.

With the recent reforms and opportunities presented by them, the Delta 3 Programme will require partnerships with the private sector to provide investment, opportunity for smallholders, and commercial drive. Providing rural poor people with access to affordable credit and new financial products will be equally important to stimulate Myanmar's rural transformation. Underlining all future activity is LIFT's resolve to bolster people's resilience through improved nutrition.

Introduction

Rice cultivation forms the backbone of the Delta economy; there is limited crop diversification, especially in the townships where LIFT is focused: Laputta, Bogale, Mawlamyinyun and Pyapon. Small-scale fishing is still a crucial livelihood activity for landless and vulnerable households. The prevalence of poverty is high (26 per cent),¹ and as the most populated region of the country, the Delta has a very large number of poor people. Inequality is also a problem; the proportion of landless households in the Delta is much higher than in the rest of the country (66 per cent),² an issue that is more pronounced in the southern extremes of the Delta. While children's dietary diversity is better than elsewhere in the country, only 43 per cent of children under two consume an adequately diverse diet.

Livelihoods activities are a complex combination of farming, fisheries (including fishponds and in- and offshore fisheries), livestock raising, casual labour, and other off-farm activities typically comprises livelihoods in the Delta region. Farmers are mostly rice-based with a limited level of diversification. They face limited access to labour at rising cost, especially between the monsoon and winter seasons.

In this context, LIFT's Delta 2 Programme brought together nine implementing partners (IPs) to coordinate development assistance and support. The IPs were selected based on their capacity to provide targeted technical support, or their expertise in extending microfinance services to the selected areas. Towards the conclusion of the Delta 2 Programme, LIFT and its partners came together to share their experiences at workshops organised by LIFT in October 2014. The workshops broadly focused on four thematic areas:

1. Agricultural production and post-harvest management
2. Integrating farmers in the rice value chain
3. Making income generating activities become profitable businesses
4. Organising collective services

Upon successful completion of the workshops, LIFT invited each of its IPs to present their experiences in a report that captures the background, processes, and lessons from each project.

This report is a compilation of individual project reports submitted by the IPs, prepared by LIFT in collaboration with an independent consultant. Each chapter highlights experiences in one of the four areas mentioned above. Some of the questions raised during the workshop discussions by partners during specific project presentations can be found in the Annex.

Building on the Delta 2 framework, LIFT's Delta 3 Programme will focus on the following components:

1. To strengthen the smallholder farmer position in the rice value chain
2. Access to new economic opportunities for landless and poor households
3. Addressing household and community vulnerabilities
4. Support to pro-poor policies and stakeholder coordination

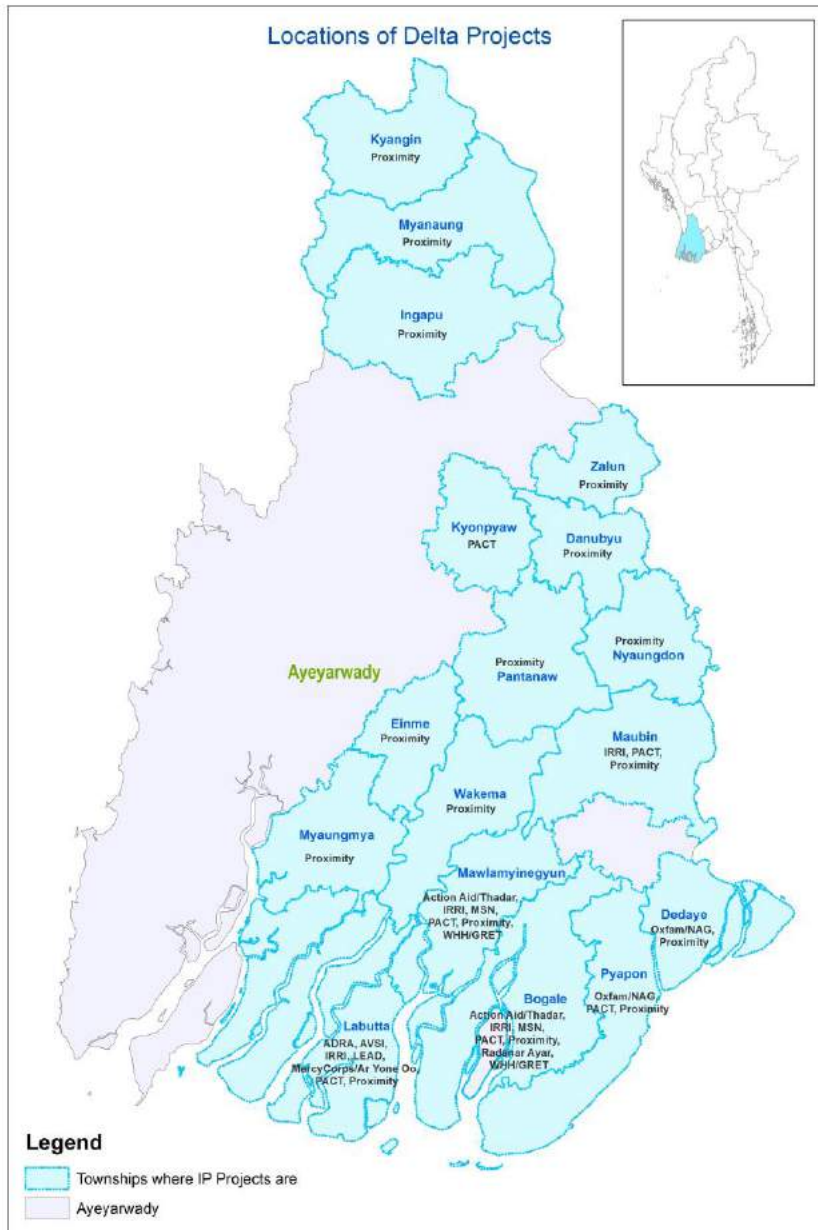
¹ LIFT Household Survey 2013 and WFP Food Security Assessment (2014).

² LIFT Household Survey 2013

This compilation aims to share the benefit of LIFT’s knowledge and partner experience in the Delta, and is presented with the intention of propelling the Delta 3 Programme further towards achieving its goals.

Powerpoint presentations from the workshops can be found at www.lift-fund.org
<http://www.lift-fund.org/eventbest-practices-event/lift-partners-share-lessons-and-good-practice-implementing-projects-delta>

Locations of the LIFT-funded Delta Projects 2010 -2014 featured in this report



Section 1: Agricultural Production and Post-Harvest Management

Paddy Double Cropping (cultivating two paddy crops per year) in Brackish and Saline Water Intrusion Areas

Proximity Designs

There is a high potential for farmers to practice double rice cropping – or cultivate two paddy crops per year - in brackish and saline water intrusion areas in several townships in the Delta. However, this is dependent on a farmers’ ability to select appropriate short life rice seed varieties and proper management of cultivation and irrigation cycles according to the lunar calendar. The main challenges for farmers in practicing double cropping is access to short-matured paddy seed varieties, power tillers, pumps, and threshers.

Background and Objectives

Environmental limitations in the Delta pose a particular challenge to agricultural production in areas frequently affected by floods and salty water intrusion.

The southern part of the Ayeyarwady Delta is divided into three broad agro-ecological sub-zones: i) the northern zone, where access to fresh water allows the irrigation of a second crop per year; ii) the southern brackish water zone, where only monsoon rains allow paddy to grow; and iii) the intermediate zone, where a second crop is not guaranteed because water salinity levels increase progressively.

Since 1975, attempts have been made to grow dry season paddy (between November and January) in brackish and saline areas of the Delta, but farmers have been unable to succeed because of the limited time after the monsoon harvest before saline levels in the irrigation streams increased beyond the level of rice crop tolerance.

Approaches and Processes

Proximity Designs’ Farm Advisory Services team has developed a simple, low-cost approach for growing paddy in brackish areas over the dry season which involves:

- 1) Use of short matured paddy seed varieties (90-120 days) for the monsoon crop that can be harvested earlier (late October instead of December).
- 2) Use of a very short-matured variety (90-100 days) for the dry season crop that can be sown in early November and harvested by late January.
- 3) Pumping irrigation water at low tide on half-moon days, when levels of water salinity are still tolerable for paddy.
- 4) The construction of embankments along small creeks to protect the fields from saline water intrusion and allow the storage of fresh water.

Different adoption strategies are needed for areas affected by salinity because salinity levels are different in the coastal areas in Myanmar, even within one township. Double cropping will also be more

successful if salt tolerant varieties of rice are made available through the International Rice Research Institute (IRRI).

To introduce this new approach and promote adoption, farmers’ forums in the villages were organised before the growing season to ensure that farmers receive trainings at the proper time, with the possibility to change their practices for the post monsoon crop. Technical dissemination took place in the form of village meetings and trainings, during which the project field staff engaged with farmers, learned about their situations, and motivated them to grow a second crop in areas that are affected by brackish water and some saltwater intrusion. During these meetings, the project identified at least two interested farmers in each village who were willing to grow post monsoon crop and assist them to schedule their double rice cropping by developing field activities work plan including 1) selection of appropriate varieties for monsoon and dry season, 2) irrigation management according to the lunar calendar, 3) fertilisation practices.

1. Selecting short matured rice varieties

Paddy varieties for both monsoon and dry seasons are selected in accordance to their maturation periods, in order to allow planting and harvesting during the most suitable time in relation to water salinity gradients.

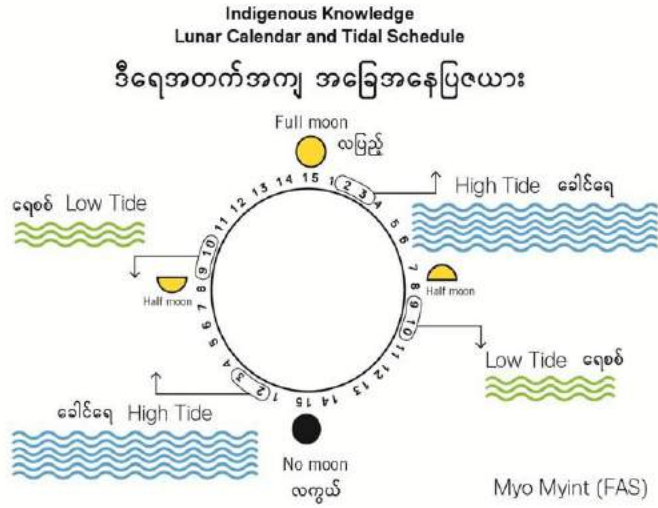
1st crop	maturation period	2nd crop	maturation period
Short matured variety (Yetagon) ³	90 DAYS	Yetagon Rice	90 DAYS
Sinn Thwe Latt	135 DAYS	Sticky Rice	95-96 DAYS
Paw San Yin	145-150 DAYS	Pa Khan Shwe War	100-105 DAYS
Pa Khan Shwe War	100-105 DAYS	Thee Htet Yin	110-115 DAYS
Thee Htet Yin	110-115 DAYS		

2. Irrigating according to the lunar calendar

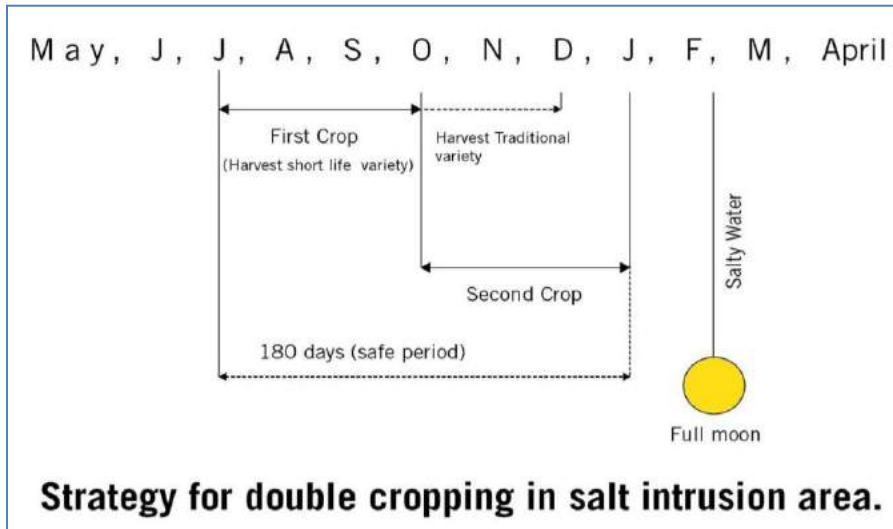
For the second rice crop in the Delta area, there are two major tidal fluctuations each month: water salt concentration is higher during the high tides. In January, when the salinity of the water begins to rise and threatens crops, farmers need to irrigate their field during the low tide period (the 9th and 10th day of the lunar calendar) to avoid crop damage. Before January, however, salinity in most areas is moderate and does not affect rice and farmers can irrigate paddies during the high tide as per tradition. As sea levels continue to rise on a global scale, the flooding schedule will have to be adapted to help farmers mitigate some of the effects of climate change.

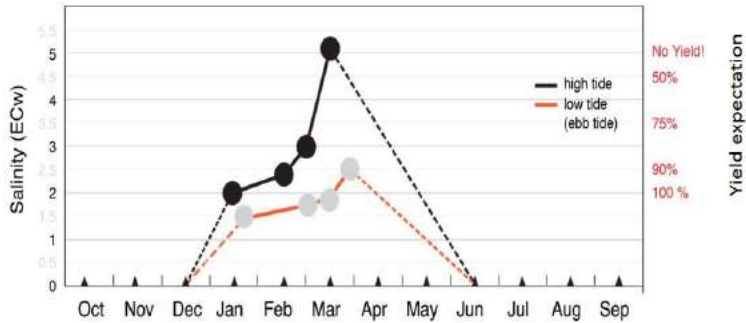
³ This new rice variety was tested by Proximity Designs and the application for an official name was submitted to DoA.

Irrigation by lunar calendar



Salt concentration of water is higher during high tides than during low tides.



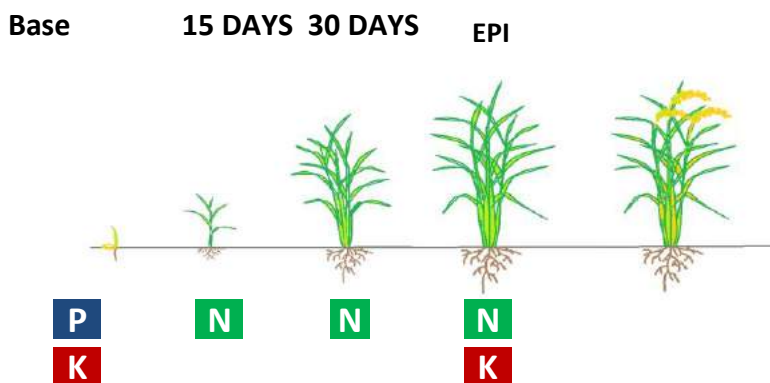


Salinity in Bogale, Magu 6 (2013-2014)

3. Proper application of fertilisers

The majority of farmers living in areas affected by brackish water and saltwater intrusion do not use fertilisers when growing rice. However, proper use of fertilisers can significantly increase post monsoon rice production. The diagram below illustrates the proper application of fertilisers at different crop growing stages.

Proper Application of Fertilisers

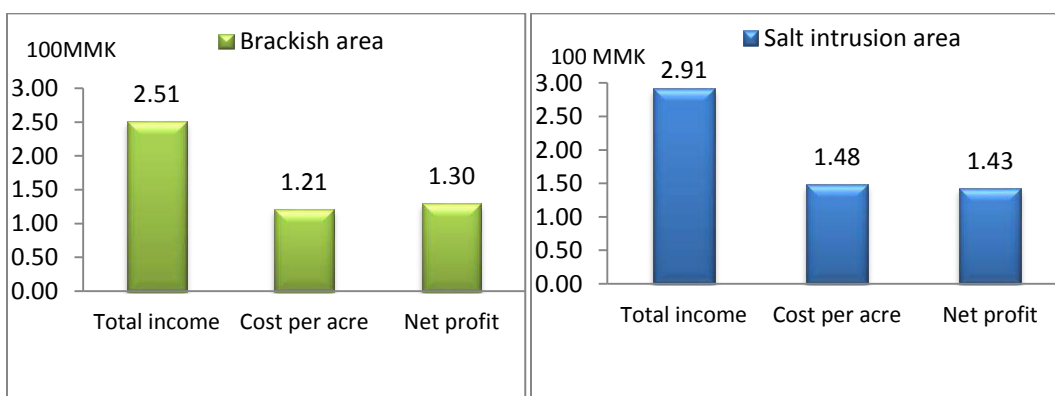


Geographical coverage (Year 2013 -14):

Tsp	Village Tract	Village	Farmer Households	Acres	Remark
Bogale	1	2	32	85	Salt intrusion area
Mawgyun	5	22	591	3608	Brackish and salt Intrusion area
Total	6	24	623	3693	

Outputs:

Double cropping in brackish and some saltwater intrusion areas provides an additional source of income for the farmers. The average yield per acre for the post-monsoon crop is 67 baskets per acre in brackish areas and 50 baskets per acre in salt intrusion areas. The cost of planting one acre of post-monsoon rice is 121,313 MMK in brackish areas and 148,496 MMK in salt intrusion areas. Farmers who practice double cropping realise an average net profit per acre of 129,696 MMK in brackish areas, and 142,558 MMK in salt intrusion areas. Dry season paddy also creates additional work for farm labourers.



Lessons

1. Appropriate time schedule for both crops

Some farmers eager to practice double cropping tried to plant their monsoon crops early in order to harvest their first crop in mid-September. This planting schedule is not ideal, however, because the harvest period coincides with the rainy season. It is therefore important to emphasize the importance of appropriate schedules to enable farmers to harvest monsoon crops in October.

2. The total land area under double cropping should be adjusted in areas with a high buffalo population

Farmers in Pan Phu Village, Mawlamyaingkyun Township, were keen to grow a post-monsoon crop and utilised 66 per cent of all the available land for a second crop. Such extensive planting threatened the local buffalo population as there was not sufficient grazing land left: it is important to help farmers balance the amount of land under double cropping with the land needs for the local livestock population. This may require reducing the area being cropped, or selling some buffaloes to invest in some small farm implements.

Future Challenges and Opportunities

1. Farmers access to farming equipment (high lift pumps, power tillers, and threshers)

The main constraint for double cropping in brackish and salt intrusion areas is the smallholder farmers' limited access to farming implements (threshers, power tillers, pumps) and affordable credit. Most farmers rely on buffaloes for land preparation and threshing. Because post-monsoon crops require farmers to plant short-matured rice varieties, buffaloes are too slow to adequately prepare the land on time. Therefore, to succeed in growing a post-monsoon crop in these areas, farmers need to own or be able to access appropriate farm implements. The following are the estimated cost of this equipment:-

1. One thresher for 10 farmers costs around 1 million MMK.
2. One hand tractor for five farmers costs 2 million MMK
3. One axial pump with engine for five farmers costs 3.5 million MMK.

2. Farmers access to credit for fertilisers

Another key constraint is that farmers are reluctant to invest the required capital inputs into growing a post-monsoon crop, especially when they are not sure to succeed: affordable credit access would allow farmers to invest in growing a post-monsoon crop. The recommended capital inputs include fertilisers, and suitable farm implements. The recommended fertiliser rate is 50kg of nitrogen, 25 kg of potassium and 25 kg of phosphate/acre. However, some villages cannot access credit for crop production investment because they occupy areas designated as forests in the government records, despite the fact that many villages have been involved in rice production for more than 50 years. Providing crop loans to these farmers should be considered in the effort to encourage double cropping.

3. Farmers' reluctance to introduce double cropping

In some cases, it is difficult to convince farmers to invest in double cropping because their previous experiences have resulted in a failure. Moreover, farmers who do plant post-monsoon crops are more likely to experience birds (sparrows) and rodent problems due to the early ripening of short-life rice.

Recommendations for wider adoption of double cropping techniques in the Myanmar Delta

- Salinity levels vary across coastal areas even within townships and throughout different parts of the Ayeyarwady Region. Farmers in different regions must work with relevant non-governmental organisations (NGOs) and other advisory services to determine the safer period for crop irrigation in their specific area. Joint brainstorming between relevant organisations – including implementing

partners, the Department of Agriculture (DoA), Irrigation Department (ID) and Water Resources Utilisation Department (WRUD) – and farmers will help determine the local ‘safe period’ for irrigation.

- Cooperation between IRRI (undertaking a salinity mapping in the Ayeyarwady) and the Land Use Division is crucial for the development and dissemination of up-to-date tidal salinisation information maps. Updated maps will help farmers and organisations to identify appropriate ‘safe periods’ and develop local irrigation calendars for each particular area. Furthermore, a tidal salinization map is currently only available for the Ayeyarwady Delta. To spread double cropping to other coastal areas of Myanmar, tidal salinisation maps of other regions need to be available.
- Opportunities for double cropping in Ayeyarwady Region are in Bogale, Mawgyun, Pyapon, Dedaye, Pathein, KanGyiDaunk, NgaPu Taw, Wakema, Myaungmya and Labutta townships.

The Post-Harvest Learning Alliance

Gummert, M., Flor, R., Quilloy, R., Kyaw, M.A., Cabardo, C., Singleton, G.
International Rice Research Institute, Los Baños, Laguna, Philippines

Although post-harvest technologies such as proper drying and simple hermetic storage of grains improve the grain quality, local markets do not yet reward better quality with better prices. Under the present context and conditions, smallholder farmers do not need flatbed dryers to dry their seeds and grains, although this can change if farmers can be linked with quality rice markets where better quality fetches significantly higher prices. In addition, there is a high potential for farmers to apply the use of hermetic storage to maintain the viability of their seeds for long durations and to store their grains at low moisture content that help retain grain quality of rice for selling when prices are higher.

Background and Objectives

IRRI's "[Improving livelihoods of rice-based rural households in the lower region of the Ayeyarwady Delta](#)" project has involved adaptive participatory research and demonstration in close collaboration with NGO partners and the Department of Agriculture and Department of Agricultural Research. The aim was to identify improved rice varieties and management/ post-harvest practices that would improve farmers' rice productivity and income, to improve extension / dissemination and seed flow.

One of the main constraints identified by farmers during a rapid rural appraisal was the low market price of their rice, related to the low quality of their produce and limited access to high value markets. Therefore there is interest for them to improve their seed quality through appropriate post-harvest practices. IRRI and its implementing partners realised that bringing in component technologies alone may not be sufficient to address the complex problem of improving the quality of rice at point of sale, and that linkages with other actors in the value chain such as traders, millers and equipment suppliers should be developed. Therefore, a Learning Alliance (LA) was established in 2013 as a multi-stakeholder platform to share ideas, field-test, refine, and adapt innovative technologies and other solutions to post-harvest and value chain issues. The approach emphasises an interactive, iterative, and participatory process among stakeholders, who include village-level farmers, millers, traders, input suppliers and other service providers and research and extension workers.

Approaches and Processes

Potentially useful technologies are identified through post-harvest and value chain assessments, the work of the LA (starting with the Participatory Impact Pathway Analysis workshop), and the knowledge and experience of IRRI scientists. These are later introduced, demonstrated, tested and adapted as needed through a series of village demonstrations and collaboration with the LA actors.

Some of technologies demonstrated:

- **Hermetic storage:** air-tight storage maintains seed viability (above 90 per cent germination) and reduces deterioration of the quality of grain. The technologies used are large silos / GrainSafes, IRRI

super bags and locally made Pioneer bags. These technologies were demonstrated and tested with farmers and proved successful, although the Pioneer bags were not air-tight and not so effective. The project supported farmer-co-operators to store their seeds in hermetic storage systems for four months and then to compare them to seeds stored by their current practice. After four months, the seeds stored using their current practice had a 10 per cent loss in germination, while the seeds that were stored using hermetic storage had only a 1 per cent decrease in germination. Having convinced farmers, the adaptive trial was replicated for rice grains, and for the monsoon, instead of the dry season. Preliminary results from the monsoon trials showed that grains stored in hermetic storage maintained their moisture content while the grains stored using their current practice increased in moisture content by up to 18 per cent, which is considered unsafe for storage.

- **Flatbed dryer:** Flatbed driers (3 ton capacity) are permanent structures and are machines fuelled by rice husks. Training on dryer operation included the measurement of grain quality after drying. Additional training compared grain quality after milling at different moisture contents to inform farmers and millers of the benefit of using the dryer. These worked well and were found to improve grain quality and milling recovery. The flat bed dryers are locally produced (based on a technology transfer from the projects) and can be installed on demand within a month.
- **Solar Bubble driers:** “Solar Bubble” drier technology was introduced to provide a mobile drying service (in contrast to the fixed flatbed driers). Solar Bubble driers were imported and demonstrated with training in use in two villages. The driers were left with the villages for community use. The driers were found to work effectively and a cost-benefit analysis found that benefits exceeded costs.
- **TC 800 lightweight thresher (TC 800):** The conventional threshers are too heavy to be easily carried to fields, and cannot thresh a wet crop. This leads to delays and losses along the post-harvest chain. The project introduced the TC800 lightweight petrol driven thresher that can be easily transported to the field and can thresh a wet crop. This worked well and was liked by farmers but had to be imported. The project has explored the opportunity for these threshers to be produced by local manufacturers, provided with the new design and technical assistance.

Lessons

1. Local markets not rewarding better quality

One of the main challenges is that, currently, local markets do not reward farmers who are producing better quality of rice with a better price. In order to encourage farmers to continue to use effective post-harvest practices and produce high quality rice (i.e. by threshing immediately after harvest, drying using flatbed dryer, using communal storage systems, and bulk selling), the LA explored alternative market options for farmers such as the whole sale market in Yangon, but viable market linkages require further strengthening.

Moreover, systems are still overly dependent on the project and adoption by farmers, service providers and traders remains very limited. Trust needs to be built.

2. Under the present context and conditions, the majority of small farmers in the Delta do not need flatbed dryers to dry their grain and seeds

Despite the introduction of flatbed dryers to enable farmers to process their paddy for seed or grain storage, not many farmers had used the dryers at the end of the 2013 monsoon crop because it was hot and dry enough to dry the paddy under the sun. Hence, a high investment was made in mechanised drying while the incentive for improved quality was still uncertain. The experience so far is that with the current cropping times and paddy varieties, sun drying is adequate to process grains and seeds after the harvest time, and markets do not yet provide an adequate 'quality incentive' for mechanised dried paddy. However, if farmers increase the cropping intensity in future by introducing improved varieties, and given fewer opportunities and time to sun-dry their harvest, this could create a greater incentive for smallholder farmers to organise themselves to collectively use flatbed dryers and other post-harvest technologies. A wet end to the monsoon season would also provide an added incentive for using flatbed dryers.

In one of the LA meetings, some farmers in Bogale who had used the dryer reported that they achieved a better grain quality than from sun drying. The farmers said they were willing to use a flatbed dryer in future, even with the estimated drying cost of 20,000 MMK per 100 baskets.

During the LA meeting in June 2015 one farmer reported that after using the flat bed dryer and having his rice custom milled at a local rice mill, he was able to sell one batch of high quality milled rice to the wholesale market of the Myanmar Rice and Paddy Traders Association (MRPTA) in Yangon and gained, after deduction all additional cost for milling and transport, US\$ 140 more profit per ha compared to when selling paddy to the local market.

This is to be followed up by coordinating several farmers to jointly process and market a bigger amount of rice in bulk. Additional support to facilitate the Learning Alliance for establishing sustainable marketing arrangements will be required.

Future Challenges and Opportunities

1. The adoption of PH technologies was limited and the underlying constraint appears to be the lack of a market incentive for quality. This reduces the demand from farmers for PH technologies and this in turn discourages service providers.

Currently there are three avenues for farmers to benefit from producing higher quality rice:

- a) Continue linking farmers groups to quality markets in Yangon or in some other major centres. This would require the continued assistance to organise the farmers in groups for bulk selling in order to meet the market demand. Both GRET and WHH have organised farmers groups for joint machinery usage (e.g. threshers by GRET) and in joint storage (Inventory storage by GRET, Community storage by WHH), so the first requirement can be realistically addressed. As the

proof of concept activity showed, some traders in the wholesale market in Yangon are willing to buy high quality rice at high price allowing farmers to add value to their crop.

- b) Local millers need to be convinced of the advantage of buying high quality dried rice at a higher price. Discussions with representatives of local millers indicate that this option is not easy; some of the local millers seem to have other interests that do not support this option.
- c) Integrate farmers into a vertically inclusive value chain of an advanced miller who is producing quality rice for export or for quality markets in major cities in Myanmar. This is a promising option given some other successful experiences from other Southeast Asian countries and this option can be explored in the medium to long term.

2. Private sector engagement

The private sector needs to make a profit and therefore it cannot be expected that it sets up supply chains for equipment that nobody wants to buy.

Establishing a supply chain for equipment requires different steps: 1.) Local manufacturing or importing, 2.) distribution, and 3.) provision of after sales services. It might also need support services like financing. The project has done the first step: local manufacturing for the flat bed dryers is established and a distributor of hermetic storage systems is available in Yangon. The second step requires a market for the equipment. The project has had good progress by proving that using the flat bed dryer, farmers can add substantial value to their rice when selling in premium markets. The project did not have sufficient time frame to extend this pilot to more farmers and establish a sustainable high quality rice marketing channel for Bogale farmers reaching Yangon. This would be the next step. Storing rice safely and selling later when market prices are higher could have increased the margin for farmers. This would also have been part of further piloting. The market for improved post-harvest equipment would develop once a sustainable quality rice market channel was established.

From IRRI and other projects' experience with piloted and scaled out hardware technologies, the lessons show that it takes 6-8 years from the time of initial demonstration until a self-sustained dissemination of a new technology is achieved. Adding the need for better market linkages, in particular in situations like in Myanmar with low knowledge about grain quality, and often very low levels of trust among value chain actors, this might even take longer. Therefore the project indicators for success were too ambitious in terms of potential outreach. However, the project managed to demonstrate that it is possible for farmers to get higher prices for their products even under current conditions if they can do best practice postharvest management and have access to high quality markets.

Rice Quality Seed Production and Marketing

Radanar Ayar Rural Development Association

In the Delta, paddy farmers currently grow up to 54 varieties of poor quality seeds, with more than 20 varieties in Bogale Township alone. Farmers continue to plant varieties that they are familiar with, and have little knowledge of new demands from the market. By identifying a limited set of five varieties of paddy seed, as agreed among traders and farmers, the project was able to focus on sourcing high quality registered seeds and to provide farmers with access to technical support from DOA/DAR and the project technical team. The project also facilitated the certification of seeds produced by the farmers.

Background and Objectives

Bogale Township is in the centre of the Delta. It covers 2.250 square kilometres, of which over 1200 (310,000 acres) are under monsoon paddy cultivation. The majority of the population depends on agriculture, and farmers are mostly rice-based with little diversification.

The decline of rice cultivation productivity in the area is due to a combination of factors:

- Intensive mono-cropping of rice without soil fertility maintenance practices
- Poor management capacity of water regimes in the Delta
- Degradation of genetic quality of existing varieties due to non-renewal of seed sources and other poor cultivation practices; in the project village at the baseline stage 88 per cent of farmers produce their own seed
- Increasing incidence of diseases and pests
- Inadequate post-harvest management practices

The main constraints that the Radanar Ayar Rural Development Association's project '[Socio-Economic and Environmental Development](#)' (SEED) project proposed to address are related to poor quality of seeds and inadequate technologies to obtain the best productivity. The project built seed production capacity at village level. Technology input was focused on the improvement of productivity and cost effectiveness.

The project facilitated the identification/selection of five varieties based on a multi-stakeholder variety selection (MSVS) process including farmers, millers, traders, brokers, retailers, wholesalers, exporters, and relevant government departments (e.g. DoA, township general administration). Criteria for selection were based on marketability, price premium and fit with the environmental conditions in the project area.

There are two sources of seeds: 1) DoA and 2) farmers. At the village level where the seeds are produced and exchanged among farmers, the quality (genetic purity) is not ensured. Uniformity in seed size and freedom from disease & pests is gradually reduced over time: seeds used and exchanged at farmer-level have to be renewed with new certified seeds (CS) produced and distributed by DoA. In the formal sector, Department of Agricultural Research (DAR) maintains breeder seed and foundations seed

to produce registered seed which is supplied to DoA for seed production (CS production). DoA produces CS required by the farmers. However, the mechanism is not working properly as both DoA and DAR are limited by their seed farms' capacity to produce and supply the required seed amount. Formal seed production does not meet farmer demand.

With the support of the project (seed, in-kind, cash and intensive technical assistances), the farmers who were willing to improve agricultural practices and distribute quality seeds among farmers had chance to collaborate in seed production

During the project period (2012-2014), over 30,000 baskets of certified rice seeds (626 metric tons) from 600 acres of seed production were produced and over 11,000 baskets (230 metric tons) could be tracked as distributed or exchanged among other farmers of neighbouring villages.

Approaches and Processes

The project has chosen the following entry points:

- **Empowering farmers with appropriate knowledge and information:** the idea is to enrich local knowledge by improved awareness and understanding of the importance of using good quality seeds. Varieties were chosen in a participatory way among farmers' and other stakeholders' favourite varieties, and production and adoption of quality seeds was a starting point to an enhanced understanding of the determinants of a quality rice crop. Key technological innovations were hand transplanting instead of seed broadcasting and stick transplanting. This innovation allowed for more rational allocation and use of resources.
- **Organising specific farmer groups around rice improvement practices:** interested rice farmers gathered in specific, semi-formal structures named "Farmers Pools", organised chiefly around the management of inputs and other support to the Revolving Funds, and represented by elected members interacting on a regular basis with the project. The seed growers would be selected among the Farmer Pool members based on disposition and aptitude. The training and technical assistance were provided chiefly through hands on training and demonstrations.
- **Providing key material and financial resources to enable farmers to adopt the proposed innovations:** this approach is based on two mechanisms, a central seed bank (CSB) and village revolving funds. The central seed bank was designed to accelerate the multiplication of quality seeds, buying part of the production of certified seeds from the seed producers for distribution. The farmers producing seeds or establishing a trial of the quality rice practices on their farm, received (free of charge through the Farmer Pools) the seeds, fertiliser and other inputs including also equipment for collective use such as seeders, sprayers, harvesters, threshers etc. Both mechanisms are expected to become self-sustaining: the seed bank through purchase and resale of certified seeds, the village revolving funds through the fee charges for using equipment, and repayments of inputs through a loan system.

1. Technical approach to estimate seed demand:

The project estimated the need to allocate 600 acres for seed production with the requirement of 900 baskets of Registered Seeds for an estimated production of 30,000 baskets of Certified Seeds. According to the proposed seed production plan below, the seed produced by the project could potentially reach full coverage to all the seed required by the township in Year III of the project

Seed Production Plan					Seed Coverage (Township Level)	
Seed Production Yield / ac Total Yield (CS) 600 acres x 50 bsk / ac = 30,000 baskets					Seed Requirement	Seed Coverage & Surplus
					630,000 baskets	5% - baskets
Available CS	Seed Rate	Acres by CS	Yield / ac	Total Yield (GS)	Seed Requirement	Seed Coverage & Surplus
30,000 baskets /	1.5 bsk / ac =	20,000 acres x	50 bsk / ac =	1,000,000 baskets	630,000 baskets	100% 370,000 baskets
Available GS	Seed Rate	Acres by GS	Yield / ac	Total Yield (FaS)	Seed Requirement	Seed Coverage & Surplus
1,000,000 baskets /	1.5 bsk / ac =	666,667 acres x	50 bsk / ac =	33,333,333 baskets	630,000 baskets	100% 32,703,333 baskets
Total Produced Seeds						
34,363,333 baskets						

CS = Certified Seed, GS = Good Seed and FaS = Farmer's Seed

2. Technical approach for certified seed production:

In addition to selecting the five varieties to be grown in Bogale, the project procured the Registered Seeds of farmers preferred varieties from DAR and distributed them to the seed grower farmers collaborating with the project. Then project's Farmers Advisory and Agriculture Testing Unit (FAATU) assisted the selected farmers with the necessary technical knowledge and skills for seed production, including: differentiation between seeds and grains; land preparation, seedbed and nursery preparation; systematic hand transplanting techniques (proper spacing and plant count); fertiliser application techniques; roughing practices; Integrated Pest Management (IPM), and post-harvest management. The training was coupled with project assistance in soil testing service.

The project's FATUU worked closely with seed growers in field inspections to ensure the quality of the seeds produced and other extension services at each stage of the cropping cycle:

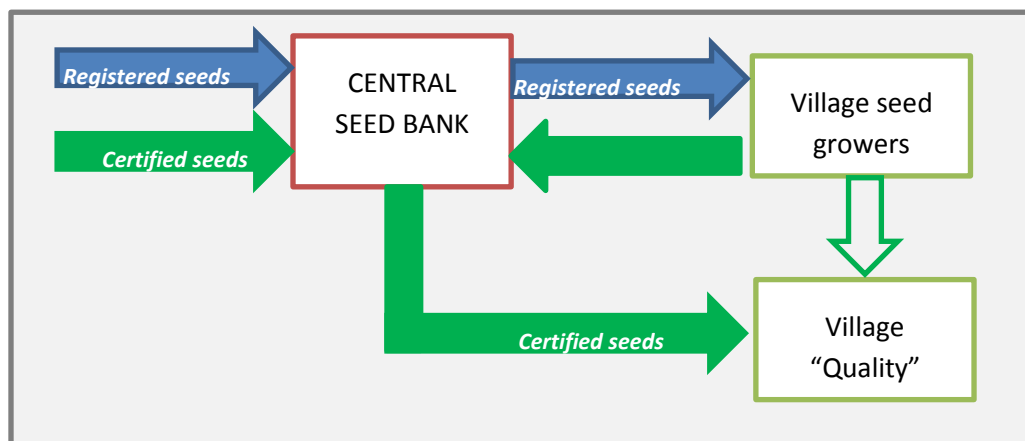
- a) The seedbed for the nursery is prepared on 900 sq. ft. of land which is sufficient to transplant 2 acres of land. Then 1.5 baskets of RS of the selected variety are spread evenly on the seed beds. Carbonised rice husk (rice husk charcoal) is spread on top in order to improve the physical structure of the soil, potassium nutrient availability and preventing the loss of seeds by rain and birds.
- b) When the seedlings are 25 days old, they are transplanted using line sowing with specific spacing as required by different varieties. For each spot, 2-3 seedlings are used. Every six rows of transplanting with one skip row is practiced for proper roughing practice to be applied later.
- c) Farmers are suggested to apply fertiliser according to the results from the soil testing service of the project. The split application of urea with compost mixture is practiced to increase the nitrogen fertiliser use efficiency. Together with project field staff monitoring support and advice,

weeding and roughing (the removal of off type plants) are practiced at least 3 times during the course of crop growth.

- d) Integrated Pest Management (IPM) is practiced to prevent and control the infestation of disease and pests. When pesticides are to be applied, the obligatory use of personal protective clothing is practiced as supported by the project.
- e) The services of FAATU also include effective farm management addressing post-harvest issues. In order to maintain the best quality, harvesting & post-harvest period takes a critical role in seed production. The use of hand harvesters and threshers was introduced and encouraged to reduce the risk of seed damage and losses by adverse weather condition. Some flatbed dryers were supported for collective using in some villages where sun drying cannot be preceded after threshing. The use of air tight bags for seed storage was encouraged to maintain the quality of the seeds.

3. The Approach of Central Seed Bank (CSB)

Apart from seed exchange within villages and across nearby villages, some of the seeds produced by the farmers were procured by the project to develop a central seed bank at township level, to play as the mediator between seed growers and seed users at the earlier stages of the project and to create a market channel at a later stages. The Central Seed Bank (CSB) was established at the township project office level with the two objectives: 1) standing as shock absorber between seed growers & market; and 2) shaping seed market channel at village level. According to the objectives, CSB will procure 30 per cent of total seed production after first project year and 15 per cent in the consecutive years. The procured seeds will be distributed to farmers from the project villages (42 villages) for crop production. Near to harvesting time, CSB conducts a workshop with seed growers for classifying the seeds and pricing by participatory means for procuring back the seeds from them. Knowledge provision on the characteristics, classification, pricing and importance of using quality seed are discussed in workshops.



...e sent to the Seed
 ...r farmers' CS is to
 demonstrate the quantitative outcome of farmers' production and to motivate them for continuous
 production & marketing. From the first seed production season of the project, only one variety – Sin

Thwe Latt out of five project identified varieties was certified. The remaining four varieties were not certified due to red kernel involvement. However, in the following seed production year, four out of five varieties have been certified as CS by DoA (except Thee Htat). The criteria set of DAR for seed certification can be seen in Figure (1).

Figure 1: Calculation on Seed Production Plan and Seed Coverage at township level

Standard	per cent (the least)		Acceptable per cent (Maximum Limit)					Red Seed in 500g Seed
	Purity	Germination	Moisture	Unfilled / Impurities / Inert	Off-type	Grass	Unacceptable Weed / Grass	
Certified Seed	97	80	13	3	1.0	0.2	5 / kg	5

Lessons

1. Difficulties in overcoming farmers' reluctance to introduce new varieties without adequate technical and market support

The project was able to identify five rice varieties for mass production out of over 20 different varieties currently been used by the farmers through MSVS approach. However, farmers were reluctant to abandon traditional varieties, especially in the face of uncertainty of the market demand for these. In one case, for example, despite identifying the Sin Thwe Latt (STL) as the rice variety with high market potential, farmers were reluctant to grow it as they had already experienced failures and losses prior to 1997 when the Government forced farmers to grow high-yielding varieties without proper technical support. The project therefore had to introduce STL production in a gradual way in the first year, starting with cultivation on small plots and in consultation with farmers. Once farmers realised that STL could grow well in their areas, they expanded production in the Bogale area in the second year following the introduction of private contract farming for STL.

2. Difficulties in estimating farmers' requirements and preferences for registered seeds at the start of a project

Since the formal sector seed supply mechanism is not fully functional, the DoA is not able to produce enough certified seeds to meet farmers' demands. The DAR is in turn unable to produce enough registered seeds as required by the DoA. The pressure on the DAR increases when farmers become involved in village-level seed production. Even for seed producers associated with the project (requiring 300 baskets of registered seed annually), it was necessary to pre-order seeds a season ahead and it was not possible to adjust the order afterwards. With more than 200 farmers collaborating with the project as seed producers just before the first production season, it was difficult to estimate the exact quantity required for different varieties. A key reason for this is that farmers only make decisions about the type of seed to plant during the cultivation period and not a season ahead. After three seasons of seed

production, however, the project was able to categorize the top seed producers for sustainable seed production, which made it easier to estimate future demand for registered seed.

3. Farmers are not willing to sell back their seeds to the CSB

At the inception of the project the expectation was that farmers would be more interested in selling their seeds to the CSB than exchanging them in their local area. The crop production component of the project (rice production for increasing yield and quality) was based on the assumption that the amount of certified seeds bought back from project seed producers would be used to supply crop producers. Furthermore, it was envisaged that after the start-up year, the CSB mechanism would protect seed producers from price shocks and enable the project to stop relying on certified seeds from the DoA. In reality, seed growers commonly keep a large portion for their own use, to exchange and to sell a portion in the village, and also when possible, sell to buyers from other areas. There are also losses and frequent cases where a part of the quality seeds are finally sold as grain for lack of outlet. Although the use of quality seeds is spreading among farmers, hence achieving the project's objectives, specific targets for the CSB were not met and the project had to continue to source certified seeds from the DoA.

4. Not all the seeds produced are kept and used as seeds

The reasons for this included:

- Inability to comply with the standards specified by the CSB, or farmers' own perception that the harvested rice was not suitable for selling as seed because of pest and disease infestation, or weather impact;
- Financial inability to store seeds for longer periods;
- Lack of storage facilities, both at individual and community level;

According to a seed tracking assessment (based on 165 samples), only 60 per cent of certified seed produced by farmers from the first seed production season was reused as seed. It is difficult for farmers to maintain the value of seed completely unless the storage and financial issues at the time of harvesting have been solved.

Future Challenges and Opportunities

1. Ensuring sustainability of seed certification when the project ends

The quality of seed production has become more standardised, and there is increasing certification of seeds produced by seed growers. This situation has encouraged a lot of farmers to continue their seed production. However, the process of certification is facilitated by the project and it is costly. Independently farmers face challenges in sending their seeds for testing due to transportation barriers and cost. Due to the extensive area under seed production, it is difficult for the CSB to continue intensive monitoring of the area and to collect seeds (or samples) for quality testing or buying. Similarly, the Bogale DoA and their seed technical support team do not have sufficient capacity to monitor the entire seed production area. Seed certification process should be at township level DoA. Creating the linkage between seed growers and seed farms (of DAR) is required to ensure continuous RS supply. As an alternative, there should be a third party for farmers' quality declaration on seed. On the other hand, groups and networks of seed growers for sustainable seed production still need to be strengthened.

2. Addressing constraints to participation in seed production by smallholder farmers

Seed production requires farmers taking higher risks than crop production and requires different marketing ability. Small holder farmers are less positioned to take the risk. An enabling environment covering some of the risk, such as provision of crop insurance, would motivate small holder farmers for seed production.

3. Implementing sound water management at community level

Water management issues cannot be solved at individual farmer level. At the time of seedbed preparation and planting, long duration of flooding could cause loss of seeds during the monsoon cropping season. Conversely, for summer production, lack of fresh water could be the main constraint. Lack of proper irrigation / drainage systems worsen makes the situation. Although land preparation is important for seed production, it is difficult for farmers to conduct proper land preparation without a leveller machine. It is difficult for farmers to become producers of registered seeds if they cannot provide a well-controlled environment.

4. Hand transplanting, fertiliser application and roughing practices are difficult for farmers to apply

Most farmers are not used to following the exact requirements of hand transplanting (intervals, plant rate and spacing). Moreover, labour costs increase for systematic hand transplantation. All seed growers experienced difficulties in adopting transplanting due to labour and weather conditions.

Appropriate fertilisation practices are also difficult for smallholder farmers to follow in terms of good fertiliser quality and dosage. Soil testing services should be located at more accessible areas to help farmers determine the correct levels of fertiliser to be applied.

Farmers are still weak in roughing practices due to the lack of skilled labour. Roughing at ripening stage is the most important stage, but farmers usually worry that the seed will fall off. There is also limited application of inter-cultivation due to lack of access to equipment, labour shortages and lack of skills among farmers. An inter-cultivator unit costs 15,000 to 20,000 MMK to rent and at least three units are required for one acre.

5. Farmers have limited access to credit

Farmers face difficulties in investing in improved production as they do not receive loans from MADB before the production season. This also makes it difficult to access quality inputs, rent farming equipment or pay for labour. Moreover, skilled labour is critical throughout the entire production process, from land preparation, hand transplantation and roughing to post-harvest management. The loan system should therefore be in place before the start of the planting season.

6. Farmers' capacity to carry out regular monitoring and reporting is still weak

Farmers are still weak in providing timely reports of production issues to enable an early diagnosis. They usually solve problems themselves based on previous experiences. Without regular field inspections, problems such as pest infestation could easily escalate. Currently, the most reliable solutions for farmers are the services provided by pesticides shops. Further improvements could be introduced to capitalize on the growing use of information and communication technologies by facilitating: easy reporting of incidents by farmers and receiving technical assistance via mobile phones; and early warning on possible pest and disease outbreaks using mobile phones or mobile applications.

7. Difficulties in harvesting and post-harvest processing

Different equipment and post-harvest practices could significantly increase the quality and return on investment of seed production:

Hand Harvester: land preparation (levelling) is critical and a hand-harvester is required on dry land. A hand-harvester costs 1,800,000 MMK and farmers cannot afford this. However, hiring costs are more manageable and results are better than manual harvesting. The capacity of hand harvester is limited only to dry land conditions. Maintenance after each season requires specialised technicians who are rarely available at village level.

Thresher: the capacity of thresher is limited and seed purity cannot be guaranteed with danger of mixing different varieties. Ideally, each seed grower should have a thresher of his/her own. For threshing high moisture content percentage produce, there is an increase in broken spikes/seeds, unfilled grains, weeds & other impurities. Usually farmers increase the revolving speed of engine for more powerful threshing in this situation and this generally worsens things.

Drying: most of farmers do not follow appropriate drying practices, including not leaving enough time for sun drying. Moreover, they do not feel that drying technologies are a worthy investment. Flatbed dryers are one of the options. A flatbed dryer costs 2,000 USD without engine and roofing, thus the only possibility is group ownership. Farmers are reluctant to use the drying facility due to distance. High capacity fixed-dryers should be installed at large-scale seed buyers and/or seed farms.

Combine Harvester: most lands is small-plot-sized farms, which are not suitable for combine harvesters.

Storage in Air-Tight Bags can maintain the quality of seeds. However, each bag can store only a maximum of 2 baskets and the budget requested for the entire harvest is not affordable for any farmer. Using an air-tight bag still needs some expertise in terms of extracting the air completely and tying the bags properly. Ordinary plastic bags can be used for temporary storage (up to 2 months), but each seed grower would need appropriate bags for long-term storage (at least 5-6 months). Storage facilities are still inaccessible for farmers (especially for long-term and large scale). Storage facilities (granary, warehouse, large-scale silos) should be established in accessible areas. Warehouse Receipt System (WRS) should be integrated in storage facilities.

8. Added cost for transportation deters the seed marketing flow

Farmers prefer to sell their produce to buyers and brokers who pass by their farms during the harvesting period. This is due to a number of constraining factors, including the high cost of transport, and poor infrastructure and storage facilities. Moreover, traditional exchange methods (basket-to-basket) are still practiced in many rural areas. Since most brokers are interested in buying grain for consumer market, coupled with late demand from seed buyers who usually look for seeds just before the start of the new planting season, this increases the chance of inadequate seed supply and weakens the development of the seed market. To overcome this, it is important to strengthen the connection between suppliers (seed producers) and seed buyers. Seed producers can advertise available seed varieties and amounts and invite farmers to come and monitor the seed production processes and quality prior to harvesting.

Winter Crop Cultivation in Labutta

Ar Yone Oo Relief and Development/Mercy Corps Consortium Link Emergency Aid and Development (LEAD)

The cultivation of winter crops in Labutta Township is constrained by the lack of fresh water, particularly in the southern parts close to the sea. Some winter crops such as sesame and watermelon can be grown in areas protected by dykes with appropriate techniques and can provide a second source of income to small holder farmers. If the availability of fresh water is not sufficient for a watermelon crop, sweet corn can be grown and provide a relevant income to the farmers during the post monsoon season. Constraints to extension of winter crop cultivation are related to limited suitable areas, labour shortages and scarcity of farmyard manure.

Background

Winter crop production activities were promoted by Ar Yone Oo Relief and Development in the framework of their project '[Beyond Recovery: Promoting Market-led, Pro-poor Economic Growth.](#)' The project was jointly implemented with the Ar Yone Oo/Mercy Corps Consortium and Link Emergency Aid & Development (LEAD) in the framework of their project '[Accelerating Food Security: Ensuring Food Security Among Farmers and Landless Labourers by Provision of Technical, Farming, And Livestock Inputs.](#)' in Kone Gyi and Tei Pin Kaing village tracts of Pyinsalu sub-township, Labutta Township.

Labutta Township consists of three different agro-ecological zones: the fresh water, brackish water, and the saline water zones. Being the township located in the southern part of the Delta, with limited supplies of fresh water, the majority of farmers grow only one monsoon rice crop. The risks of winter crop failure are particularly high in the southern part of Labutta, which is affected by saline water intrusion. Only few farmers in the slightly elevated areas in the northern part of Labutta grow pulses such as green gram and black gram. But these crops tend to become heavily infested by pests, especially army worms. The main livelihood activities for local communities are monsoon paddy cultivation and fisheries. However, a small number of farmers practice small-scale winter crop cultivation for home consumption. Winter crops can also be grown in areas protected from flood and salt water by embankments.

Diversifying and intensifying new adaptable and promising crops with suitable growing practices could provide farmers with alternative income sources. The objective of the intervention was to explore possibilities for growing winter crops in areas that are protected from salt water intrusion and where there is availability of fresh water nearby.

The project introduced winter crop cultivation practices to farmers of Lay Yin Kwin village, Kone Gyi village tract by LEAD and of Leik Thit village, Leik Thit village tract by Ar Yone Oo, in PyinSalu sub-township.

Approaches and Processes

As part of project interventions, landless and vulnerable households were assisted with inputs and technical assistance to grow a range of winter crops, suitable to the area and with market potential.

In total, five crops were selected and tested (watermelon, sesame, groundnut, cowpea and green gram) but only watermelon and sesame crops were successfully introduced. Watermelon and sweet corn have high potential as cash crops because of their high profit margins in a short time while sesame can be grown as additional source of cooking oil for home consumption.

To promote the introduction of winter crops, field staff conducted meetings with village leaders, elder persons, key informants, and Village Development Committees (VDCs) for detailed discussion on the potential and suitability of these crops. Focus group discussions were conducted using Participatory Learning and Action (PLA) to develop action plans with interested farmers.

Implementation of the project started with the identification of areas suitable for growing winter crops. The staff then conducted a meeting with some experienced winter crop farmers to understand the situation in their local context, assessing their basic knowledge and experience in growing winter crops. A few interested farmers were then selected by the VDCs and farmer groups to participate in winter crop demonstrations. The farmers received technical training on pesticide application, management techniques prior to cultivation, as well as in-kind support of seeds, foliar fertiliser, pesticides and sprayers. Participating farmers provided labour and other requirements for land preparation, pit digging, weeding, harvesting etc.

Watermelon

A group of interested farmers was selected to grow watermelon in a sandy and dune area (Lay Yin Kwin village). Planting spots were marked out with a spacing of seven by seven feet, and hybrid P2 seeds were sown in the spots. Small pits were dug at the planting spots and the watermelon seeds mixed with pesticides were placed in the pits and covered with soil. Farmers used four seeds for one pit and after germination thinned the plants to leave the two stronger ones for each spot. At the fruit bearing time, the plants were thinned to leave one to two fruits on each plant. Therefore, for each spot farmers can get two to four fruits from two plants. Some foliar fertilisers from Awba Co. were applied in the flowering and fruiting stages. Although the area is located in a saline water zone, farmers had access to fresh water from shallow wells in the elevated area nearby. At harvest time, the growers sold all their fruit to local villagers at the cultivation site, as there is no special market for watermelon in the area.

The average cost of watermelon cultivation is 250,000 MMK per acre. Farmers harvested an average of 1600 fruits per acre, which they sold at 500-800 MMK per fruit, yielding an average return of about 800,000 MMK and a profit of 550,000 MMK per acre in a growing period of 3.5 to four months. This is quite a substantial profit from a one-acre plot of watermelon.

In the Ar Yone Oo project, where fresh water was available at all the watermelon cultivation sites in Leik Thit Village, farmers were introduced to the paired-raised bed growing method in the 2013-14 winter seasons. This improvement on the traditional pit method and watering by manual labour enabled

farmers to engage in mass production. Ar Yone Oo provided the technical training to the members of the village vegetable group (VVG) and a practical demonstration plot was established with one of the members of the VVG. The project provided the grower with cash to cover part of the cultivation costs, as well as some inputs equivalent to 200,000 MMK.

The paired-raised beds approach enables mechanised irrigation at regular (five day) intervals in the furrows between the beds without affecting the root zone. This is important because of the shortage of casual labour for manual watering using pots. In fresh water areas, the irrigation water was pumped from the nearby streams, while in salt-water areas the water was pumped from trenches situated along the embankments inside the polder area. The watermelon variety used was 'Known You 855.' Seeds were treated with fungicides and seedlings and raised in plastic bags. After transplanting them to the beds at a spacing of 2.5 by 15 feet, black polyethylene plastic sheets were spread on the beds to reduce loss of water and moisture from surface evaporation. At flowering stage, manual pollination was carried out early in the morning time. At fruiting stage, fruits were thinned to one per plant and thus the plant population of 1600 yielded about 1600 fruits per acre. No irrigation was done in the final 60 days of the growing period. As the cost of cultivation using this method is about 600,000 MMK an acre, the average price of 1,000 MMK for one fruit provided the farmers with a return of 1,600,000 MMK, and a net profit of 1,000,000 MMK per acre.

Sesame

LEAD tested and demonstrated the cultivation of sesame crop in an area where sandy loam soils were dominant (Kone Gyi village). Sowing was done by broadcasting with the certified seeds known as Sinyadanar 3, procured in Magway Township from sesame farmers. The project provided technical support and some agricultural inputs for farmers interested in growing this crop and recommended that to establish a village revolving fund (VRF) from the proceeds.

The cost of sesame crop cultivation is about 85,000 MMK/acre (including the cost of processing sesame oil). The average yield of five baskets / acre provided farmers with 32 viss of cooking oil that they sold at 5,000 MMK/viss. Thus sesame crop cultivation yielded a return of 160,000 MMK/acre with a net profit of 75,000 MMK. Although the profit is quite small compared to watermelon cultivation, many resource-poor farmers prefer growing sesame because of the low production cost. As a result of the favourable weather conditions, most farmers were successful in cultivating their winter crops and some farmers extended the acreage for the following winter season.

Other crop such as groundnut and cowpea were not appreciated by farmers either for high risk of crop failure vs. cultivation costs (groundnut) or because of lower profitability compared to watermelon and sesame (cowpea).

Where farmers can afford the higher cost of cultivation, they tend to cultivate watermelon because of its high demand among local villagers and the high profit margins that make it an ideal cash crop.

Where farmers cannot afford high cost of cultivation they prefer sesame because its higher profitability compared to other low cultivation costs crops.

Moreover, sesame and watermelon require minimal application of pesticides due to the low weed and pest infestation for these crops in the Labutta area. The number of farmers practicing small-scale cultivation of watermelon and sesame has therefore been increasing every year in the project area.

Sweet corn

It was found that local people in the project area consume large amounts of sweetcorn that is transported from other townships and Yangon market. Ar Yone Oo therefore decided to explore the possibility of introducing the cultivation of sweet corn on a commercial scale in the Delta area. Sweet corn demonstration plots were established in Kha Yan Kwin village, which falls in an embankment area and is protected from salt water intrusion but lacks sufficient fresh water to support irrigated watermelon cultivation. Ar Yone Oo provided technical training to members of the local Farmer Producer Enterprise (FPE) and one member of the FPE with experience in small-scale corn cultivation was identified to conduct the demonstration. The project provided support to cover part of the cultivation costs in cash and some inputs equivalent to 200,000 MMK. The variety of the sweet corn was chosen according to the market demand.

Land preparation was carried out with a deep and fine tillage of the soil; the seeds were then sown into the prepared harrow lines. After the seedlings had developed into small plants, regular irrigation was conducted at 10-day intervals up to the 65th to 70th day of cultivation. The irrigated water was collected from the trenches situated along the dykes in the polder areas. Fertiliser solutions were applied in split doses. The undersized cobs were thinned out to leave 1 or 2 cobs per plant. The yield was about 20,000 cobs/acre, with a return of about 1,000,000 MMK at 50 MMK/cob. As the cost of cultivation was about 400,000 MMK/acre, the farmer made a net profit of 600,000 MMK/acre which is more than two times the profit from summer rice cultivation with an average yield of 100 baskets/acre.

Lessons

1. Growing watermelon late in the season reduces yield due to insufficient fresh water

When watermelon is cultivated late in the season, the plants are exposed to drier weather with insufficient fresh water to irrigate at flowering and fruit development stage. Farmers who planted their crop late in January did not get a good yield due to insufficient fresh water to irrigate their field, while farmers who started cultivation in November managed to get a better yield. The reason for late cultivation by some farmers was the late harvest of their monsoon paddy and lack of farm tools to prepare for watermelon cultivation. In some plots, the watermelon crop was infested by rats due to proximity to dense bush, which affected fruit quality and farmers' income. The area surrounding the watermelon cultivation site should therefore be cleared of any bushes that can attract rats and other pests.

2. Early harvest of all winter crops is important for a higher market price

To fetch the best prices, farmers need to harvest their winter crops, particularly watermelon and sweet corn, early in the season. If harvested late, the produce has to compete with sweetcorn transported from Nyaungdon and Maubin townships.

Future Challenges and Opportunities

1. Markets for winter crops like watermelon fruits and sesame seeds need to be at town level

Watermelon growers usually sell their fruit locally, which makes it difficult to get a good and consistent price for all their produce. The price has to be adjusted daily depending on the number of villagers visiting the field at harvest time to buy fruit for their home consumption.

Until now, there is no market for a winter crop at the town market as consumers are not accustomed to winter crop production. Without market demand farmers will be less incentivised to produce these kinds of winter crops.

2. The lack of oil pressing mills in Pyinsalu area for sesame crop grower farmers

While local demand for sesame seeds remains low in the Pyinsalu area, there is a good market for cooking oil in Labutta town. However, the lack of an oil pressing facility discourages farmers from investing in sesame production as they have to travel beyond Pyinsalu area at their own expense to grind the sesame seeds.

3. Lack of labour for winter crop growing

In addition to limited availability of fresh water, farmers find it very difficult to hire labourers during the winter growing season because many casual workers migrate to towns and other areas to find odd jobs.

4. Inadequate protection from saline water intrusion

Although some dykes have been constructed in the area in the past, most of them are no longer in good condition following Cyclone Nargis. Since the success of the winter crop is highly dependent on protection of the crop from salt water intrusion and the availability of fresh water in the protected zone, farmers have to take high risks if dykes are not properly maintained. Moreover, local communities do not have the resources to repair and maintain the old dykes. These are some of the main reasons why many farms are left uncultivated following the monsoon paddy harvest.

5. Scarcity of farmyard manure and compost

With the limited availability of farmyard manure and other decomposed organic residues in the area, the use of chemical fertilisers alone cannot maintain the production of watermelon, sweet corn and sesame in the long run. Alternative solutions like composting and rotating some pulse crops in the winter season are needed to maintain the fertility of the soil.

Section 2: Integrating farmers in the rice value chain

Purchase Finance System and Inventory Credit

Welthungerhilfe (WHH) and Groupe de Recherches et d'Echanges Technologiques (GRET)

Although farmers benefit from collective services in order to counteract falling paddy prices at harvest time, such as purchase finance systems (PFS) or inventory credits (IC), ensuring access for the most vulnerable farmers remains a challenge. Due to their high indebtedness and urgent food needs right after harvest time, vulnerable farmers can only store limited amounts of paddy, which reduces the benefit accordingly. Moreover, despite careful monitoring of market prices, sudden price falls can occur after the peak. The PFS systems guarantee a minimum payment of the market price valid at harvest time and balance eventual losses from their accumulated PFS funds, while in the IC system the farmers will be responsible to compensate eventual losses by themselves. One initial strategic choice for mitigating possible losses was to limit the stored amount of rice. However, these systems are still at an early phase, and they are vulnerable to several risks.

Background and Objectives

Smallholder farmers usually need cash immediately after the harvest. Apart from their usual family expenditures for food, health care and other living costs, they also have to repay loans taken from government, agro-input suppliers and local money lenders. In the case of fresh water villages, farmers may need to invest again for summer paddy cultivation. At the same time, paddy prices decrease directly after the harvest due to the abundant supply, and farmers often do not have the option to store their paddy until prices rise again. As they usually sell their produce individually, they are in a vulnerable negotiation position with the traders who also pass on a considerable portion of the transportation costs to smallholder farmers.

Against this backdrop, LIFT consortium partners Welthungerhilfe (WHH) and Groupe de Recherches et d'Echanges Technologiques (GRET) helped to set up mechanisms to enable farmers to store the paddy until they could sell it at a profit. While they shared the same objective and approach, the two systems differed slightly in their methodology and implementation procedures. WHH facilitated the Purchase Finance model while GRET implemented Inventory Credits in their respective project intervention areas.

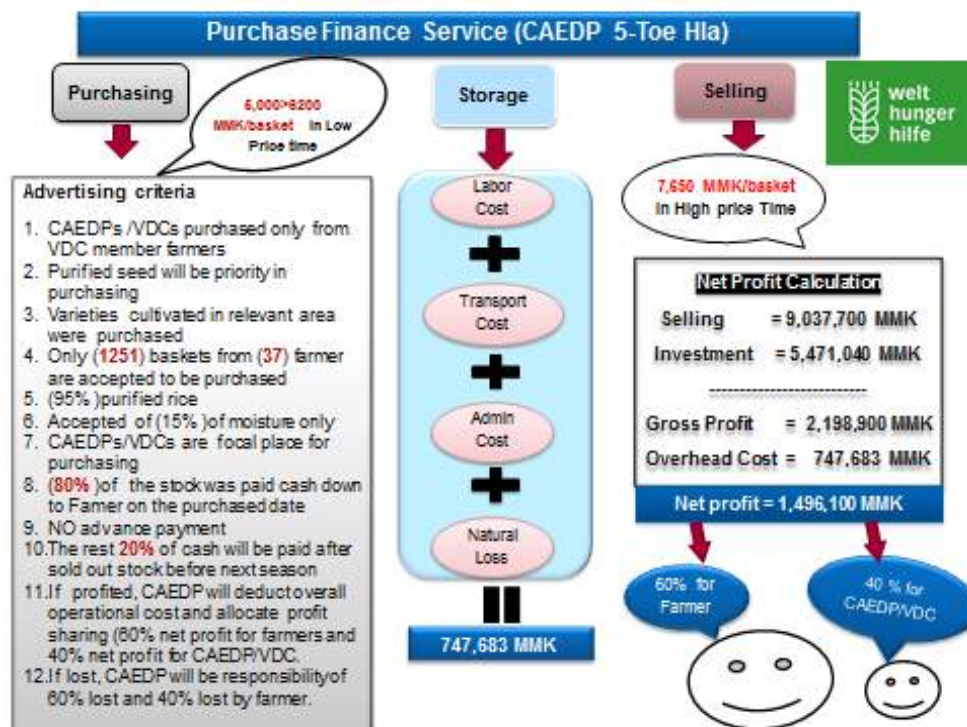
The objective of the two services systems is to benefit smallholder farmers who need cash directly after the harvest, but are also interested in benefitting from a higher paddy market price in the following months. Farmers from one or more communities store their paddy together and receive an advance payment under PFS, or a loan under IC, with which they can cover their individual economic needs. After some months, when market prices have risen, the paddy is sold - most of the time collectively - at a profit. In both systems, farmers benefit from that profit, but also have to contribute their share to the storing costs and for the growing of the funds.

Approaches and Processes

1. Purchase Finance System schemes (PFSs)

- a. In WHH areas, PFS steering committees comprise either the so-called Community Agro-Economic Development Platforms (CAEDPs) bringing together between two and six villages, or Village Development Committees (VDCs) in cases where the scheme is implemented in a single village. Initially, the CAEDP, VDC received financial input (a start-up grant) from the project. A full PFS cycle consists of four main steps: During the purchasing stage, the CAEDP/VDC announces the new PFS cycle and defines the criteria for farmers' participation during community meeting. These criteria might include: the variety (ies) of paddy that will be stored; the required quality of the paddy; and the maximum amount of paddy that one farmer can sell to the PFS. The composition of the farmer's committee that will decide on when to sell is also discussed. Finally, the CAEDP/VDC publishes the list of participants. Thereafter, the storekeeper takes over, with responsibility to collect paddy from individual farms, where he also undertakes quality control of the produce (e.g. uniformity of grains, degree of moisture, etc.). Farmers are paid for 80 per cent of the value of rice stored at the price of harvesting time.
- b. During the storage phase, the storekeeper is responsible for continuous quality checks of the stored paddy in the warehouses and is therefore a crucial player. The storekeeper receives a fixed monthly remuneration, in addition to a three per cent share of the final net profit. The storekeeper is also responsible for monitoring the market price of the respective paddy varieties. The project provides weekly market development updates, which are announced on the village announcement board. When the market price has risen satisfactorily, the CAEDP/VDC is informed and decides together with all farmers about the selling date.
- c. The selling of the stock is undertaken by the PFS steering committee, following the approval of participants. The steering committee then contacts the traders and negotiates conditions. Sometimes, when one PFS holds more than one paddy variety, different sale dates for the respective varieties may be set. In many cases, the bulk selling of paddy results places farmers in a better position, as buyers may agree to take on the transportation costs (in exchange for being able to buy a large quantity of quality-controlled paddy).
- d. Profit distribution is done by the PFS steering committee. After proportional overhead costs and possible losses are deducted, the storekeeper receives three per cent of the net profit. The remaining profit is divided between farmers (60 per cent) and the PFS system (40 per cent). The latter is deposited in the PFS bank account of the steering committee, to be used to extend the next PFS cycle to more farmers.

The following diagram shows how a typical PFS is implemented and its profit shared between farmers and the CAEDP.



2. Inventory Credit schemes (ICs)

Following a needs assessment survey, interested farmers from three to six villages establish an IC group at cluster level. Members of the group then elect leaders from among themselves to form the IC committee. GRET provides training for the IC committee members on management, accounting and monitoring, as well as follow up technical support. The project then signs an agreement with the IC committee and provides the initial fund capital to be used as loans for farmers.

The IC cycle is divided into three steps: loan application selection, storage and loan provision, and selling and loan repayment. Loan selection is done just before harvest. Each interested member fills an application form for the season. The IC committee selects borrowers according to criteria list, storage and fund availability. All members agree on the storage time and price.

Each IC rents a private warehouse or has its own warehouse (provided by GRET since late 2014). At storage time, the IC committee checks paddy quality (moisture, disease, pests) in every household before transfer to the warehouse. The IC committee disburses loans to members at storage date with the paddy stock serving as collateral for the loan. The size of loan is 65 per cent of the paddy stock value at harvesting time. During the whole storage period, the IC committee and warehouse owner are responsible for the stock. The IC committee makes a regular inspection every 15 days.

At selling time, when paddy price is at its peak, the IC committee regularly checks market prices and buyers' offers and submits selling proposals to IC members. The final decision to sell is taken only by members and mainly takes place collectively, although members can also sell their paddy individually.

Buyers can check paddy quality directly at the warehouse or by sample. Within the same day:

- The trader settles the payment to members;
- Members repay their IC loan, including loan interest (2.5 per cent/month) and storage cost (between two and five per cent depending on the paddy variety);
- The IC committee opens the warehouse and transfers the paddy stock to the trader.

In this way, before handing over their paddy to the buyer, farmers ensure that they have repaid the principal loan and the interest due to the IC.

Key Questions	PFS	IC
Who is hosting/steering the systems?	<p>PFS is hosted either at village level by the VDCs or at cluster level by the CAEDPs, that form an umbrella management committee for several VDCs (up to 6 villages).</p> <p>Although it is a service to farmers, it is managed by representatives of the wider community (ies).</p>	<p>IC is hosted at cluster level with groups of farmers from three to six villages. The farmers form a management committee to coordinate their activities.</p> <p>IC is managed by the farmers themselves.</p>
How is quality ensured?	<p>A storekeeper, paid from the overhead costs, makes quality checks at the farmers' houses when purchasing the paddy (moisture, uniformity of the grains, etc.) and continuously monitors the paddy during storage.</p>	<p>The warehouse owner is contracted to take responsibility for store maintenance. The IC committee makes a quality check before and during storage.</p>
Who owns the stored paddy?	<p>VDCs/CAEDPs buy the paddy from the farmers after the harvest at the current market price.</p> <p>The stored paddy is owned by the VDCs/CAEDPs.</p>	<p>IC committee provides a loan to farmers by keeping their paddy as inventory (a type of collateral).</p> <p>The stored paddy is owned by the individual farmers.</p>
What amount of money does the farmer receive right after harvest?	<p>80 per cent of the current market price is paid out in cash to the farmers.</p>	<p>65 per cent of the current market price is given as loan to the farmers.</p>
What happens with the remaining amount?	<p>The storage costs are deducted and the remaining amount is paid out to the farmers after the paddy is sold. Thus, CAEDPs/VDCs guarantee at least full payment of the price valid after harvest.</p>	

How are the overhead costs paid?	Overhead costs are advanced by the VDCs/CAEDPs from the withheld 20 per cent of the current market price. After the paddy is sold, the costs are proportionally deducted from each farmer's profit (five per cent).	Farmers pay storage costs (between four and five per cent) after selling their paddy, as well as 2.5 per cent loan interest.
How is the market price development monitored?	The hosting VDC/CAEDP/IC committees groups are connected to the market information system (MIS) facilitated by the project.	
Who decides about selling dates?	Under guidance of VDCs/CAEDPs, farmers select a farmers committee that decides on the sale date.	Individual farmers decide about when to sell, but collective selling by the farmers is fostered.
Who bears the risks of sudden price falls?	The VDCs/CAEDPs guarantee to pay, at minimum, the full market price valid after harvesting. This practice is beneficial for farmers, but makes the PFS system vulnerable to sudden price falls.	The individual farmers.
How do the systems grow?	Farmers agreed to share 40 per cent of their net profit with the PFS system, so that in the next cycle, more farmers can be included.	Farmers pay 2.5 per cent interest on their loan after selling the paddy.

Both collective service approaches not only provide monetary benefit to farmers, they also ensure that paid interests (IC) or the profit share for the hosting VDC/CAEDP (PFS) flow back into the systems that consequently grow and can include more farmers in following cycles. Other welcome side effects for farmers include a greater awareness of the importance of product quality, and improved self-management and collective operational capacities (notably their record keeping and accounting skills and their negotiation skills when dealing with buyers). In 2015, several PFS systems (11) combined under the CAED Network Committee for joint bulk selling of paddy, while IC schemes had collective negotiation at township level.

Lessons

1. Collective action is fostered by collective storing and selling

Collective selling gives farmers more negotiation power *vis a vis* traders. Farmers expressed a wider range of benefits than just getting a loan, including: more opportunities to make collective purchases from traders at competitive prices; more profits from paddy farm-gate prices due to reduced transport costs to city rice mills; and fostering opportunities for future collective actions such as milling and selling directly to major markets in Yangon, etc.

2. The quality and cost of the storage facilities are important for the success of PFS/IC

Rats are the main reason for losses during storage. Their intrusion can be avoided if the warehouse location is carefully chosen (e.g. not near to trees from where the rats can jump). The warehouses also need to be solidly constructed, with sufficient aisle space between the stored paddy sacks. This not only ensures accessibility for quality checks, but also enables placing of rat traps. The storekeepers' continuous monitoring is essential. In PFS, the storekeeper is paid a small fixed allowance (run as overhead costs), but also gets a share of three percent of profit to ensure his commitment.

3. Learning through experience is the best way to develop trust in both people and systems

In PFS schemes particularly, farmers have to be convinced to participate for the first time. They need to build up trust in the system as such and the people that manage it. After the first cycle, most of them are eager to participate in the next cycle and to even increase their amounts of PFS paddy. It is therefore good practice to start the PFS cycle as a pilot and to grow slowly. Farmers' own experience will be the best testimony for building trust among other farmers and encouraging them to participate.

Future Challenges and Opportunities

1. Sudden falling of market prices after reaching the peak at the selling time are a major threat to farmers of both PFS and IC

Although market price fluctuation is usual in most countries, the fall of market price at the selling time can be so drastic in Myanmar particularly when a big international buyer breaks his commitment to purchase Myanmar paddy (like it happened in 2013). This may impact the whole local paddy market or the market of some particular varieties.

In the case of IC, farmers still have to pay back their initial loan (65 per cent) with interest, and though the margin on 35 per cent is enough to cover the costs, they will not get any profit. In the case of PFS, the system guarantees the full payment of the market price valid at harvesting time and makes up eventual losses from its own accumulated fund. Anyhow, as the system is still young and in growing phase, it is extremely vulnerable to these situations. To buffer these risks, VDCs/CAEDPs use only 80 per cent of the initial fund provided by WHH as active PFS fund, the remaining amount is kept at the bank in the VDCs/CAEDPs accounts as security (note: this is not the same issue of paying out 80 per cent of current market price to the farmers and paying the remaining 20 per cent after selling).

2. Some small farmers cannot participate in PFS or IC systems because they urgently need as much cash as possible after harvest

Some smallholder farmers cannot fulfil their economic needs with only 80 per cent cash down payment or current-price loans on only 65 per cent of their stored stocks after harvest. They have to prepare for the next agricultural cycle, and many farmers are highly indebted with money lenders that claim repayments of the loans plus high interests. Thus, although these farmers recognize the benefit of storage and selling at a more favourable price, they decide not to participate in PFS or IC. In IC, farmers additionally have to weigh the risk of loss against the possibility of profit, which is further reduced by the

interests of the loans. In PFS, farmers cannot make loss, but their profit is shared to 40 per cent to the PFS fund, which some might find not being enough incentive compared to receiving the full amount cash down after harvest outside of the PFS.

3. Governance and sustainability of PFS and IC

As PFS is owned by the communities through the VDCs at the bottom level and CAEDPs at the upper level, full trust by the whole community on the management committee is very important. The business management capacities of the elected board members of the VDCs/CAEDPs have been strengthened but need further support. The project run PFS both at village and cluster level. Both approaches have advantages and disadvantages. Generally, financial and organisational management work better on village level (more trust, social relations, less distance for transport and communication), while the cluster approach benefits from lower storage costs (but higher risk) and more negotiation power. A future approach should therefore be flexible, considering all aspects of the individual cases. A federation approach with storing and financial administration on village level, but joint selling on cluster or even township level, is promising.

The IC is a financial service managed by a financial organisation (owned by farmers), and provided along with other financial services. It has a good potential to be linked with HP, another financial service, on township level, so that joint capital can be used more effectively, taking into account the fluctuation of need during the seasons. The governance system, mission and rules are in place but the weak point of the system is the ownership of capital between operating level (cluster, and township) to go towards extension.

Credit for Delta Farmers

PACT

In the past, smallholder and landless farmers in the Delta had limited access to agricultural credit as existing Myanmar Agricultural Development Bank (MADB) loans primarily benefitted large-scale farmers. Moreover, the conventional business loans provided by Pact Global Microfinance Fund (PGMF) did not align with crop cycle and seasonal fluctuation in market prices. The introduction of an adapted loan for the agricultural sector has therefore been welcomed by smallholder farmers, although some challenges remain.

Background and Objectives

Livelihoods in the Delta comprise an extremely complex and interrelated mix of farming, livestock raising, fisheries including fishponds and in- and offshore fisheries, casual labour and other off-farm activities. A number of development organisations, both national and international, continue to provide support to address the long-term recovery needs of the Nargis-affected population in the Ayeyarwady Delta and revival of the local economy. The nine IPs selected under LIFT's Delta 2 funding included seven agencies with expertise in technical support to the poor and vulnerable in the programme areas and two agencies with capacity and expertise to extend microfinance services in the villages.

The projects of PACT and Proximity Designs aimed to support poor and vulnerable households in two programme areas - Labutta and Bogale/Mawlamyinegyun Townships - with access to affordable credit. Loans were tailored for four main target groups, with the aim of enabling: (a) small and marginal farmers and fishermen to increase crop and fisheries production; (b) landless poor and marginal farmers to generate income from livestock, agro-based and off-farm activities; (c) small rural entrepreneurs to engage in small-scale production and services in the village economy, which in turn would also create jobs; and (d) vulnerable households experiencing food poverty.

The initial context was that the marginalised farmers had already lost most of their resources during Cyclone Nargis. They needed capital investment to continue their farming activities. Constraints that prevented farmers from rebuilding their livelihoods included limited access to credit, high interest rates charged by local lenders, and high labour costs as well as a shortage of labour. In order to address these issues, PGMF modified its agricultural loans, with an emphasis on timely provision of funds to marginalised farmers in hard- to- reach areas.

Approaches and Processes

PGMF created access to microfinance services for marginalised farmers who were actively practicing agricultural activities, irrespective of whether they were land owners or not. To be eligible for a loan, a farmer had to be recognised by the Village Development Committee (VDC) of the relevant implementing partner (IP), as well as the village-level Microfinance Centre (MFC), through its Executive Committee. PGMF organised meetings with beneficiaries in order to understand local farming and market

conditions, such as the cost of farming, harvesting times and frequency of collecting farm produce. PGMF then defined the loan size, arranged the disbursement plan and set up the repayment schedule according to the types of crops and negotiations with the beneficiary. The maximum ceiling loan was limited to 500,000 MMK, in accordance with a directive from the Myanmar Microfinance Supervisory Enterprise (MMSE).

In the case of paddy cultivation, PGMF could provide two agricultural loans during the year, to coincide with the monsoon and post-monsoon seasons. The loan period and repayment schedule was based on the agricultural season (approximately six months for monsoon paddy and four months for post-monsoon paddy) as well as negotiations with the beneficiary. The principal was collected back at harvesting time as a balloon payment, while interest payments were based on a bi-weekly schedule: this arrangement follows the principle of small, regular payments and helps to build the relationship with clients. It also helps to reduce the burden of the balloon principal payment. For other types of crops with multiple harvests, such as betel vine and chillies, the principle repayment was linked to the multiple harvesting schedules and followed the general trend of a grace period to allow for planting and then regular payments once harvesting began. PGMF also established a Beneficiary Welfare Programme to cover losses due to uncontrollable events such as the death of a borrower, or complete crop failure due to weather conditions or localised disasters.

Methodological Approach:

PGMF's microfinance services covered three townships in the two programme areas and were coordinated with seven IPs providing technical assistance services support in the area of technology, training, market access, village infrastructure, and environmental and natural resources management. The seven IPs are Mercy Corps, ADRA, Proximity Design (former IDE) and LEAD in Labutta area, and WHH, GRET, IDE and MSN in Bogale/Mawlamyinegyun area.

The first priority for PGMF microfinance support was given to households receiving support from the technical service providers. The second priority was poor and vulnerable households in the villages where IPs were providing livelihood support. Landless farmers working on rented land were also included in PGMF's target market for microfinance support.

PGMF applied its existing solidarity group lending methodology, with an emphasis on farmers groups to guarantee the agricultural loans. To access credit, farmers had to organise themselves into small groups of five. The groups were then federated into 8 to 12 MFCs at village level, managed by an executive committee elected by the members. PGMF provided individual loans to the borrowers through the MFC's executive committee in order to ensure that responsibility and accountability were shared with the communities. The MFC chairperson and PGMF's loan officer provided coordination at loan disbursement and collection meetings.

Disbursement of agriculture loans to marginalised farmers for monsoon paddy cultivation started in June. This was the appropriate period for the paddy cultivation and ensured that most of the beneficiaries could use the loan as the main input for their farming activities. As a result they could start their farming activities on time and avoid the high interest rates charged by local money lenders.

The timely provision of agricultural credit had a positive impact on both beneficiaries and the project as a whole. In addition to increasing their food productivity, marginalised farmers could avoid taking high interest loans by using the credit as a timely input for farming and paying back the principal at harvesting time. Moreover, they had access to several repayment options based on the types of crop grown. By spreading out interest payments in bi-weekly collections, the financial burden for marginalised farmers at harvest time was further reduced. The agricultural loan product represented a consistent investment in the agricultural sector in the Delta and its characteristics allow a rate of repayment of 99.65 per cent throughout the project timeframe.

PGMF conducted regular monitoring after every loan disbursement to ensure accountability of the beneficiary system. In this regard, regular monitoring, listening to the beneficiary, and using the adaptable methodology, helped building trust and a good relationship between beneficiaries and the project team.

Lessons

1. Repayment of agriculture loan was good despite leniency in applying lending criteria to farmers

PGMF practice includes a requirement for a farmer to have good record as a regular borrower for at least one year to be eligible for an agriculture loan. In order to ensure timely provision of microfinance during the season, PGMF relaxed this conditionality. Notwithstanding, repayment of agricultural loans remained very high.

2. Farmers practicing mono-cropping are more vulnerable to financial problems and crop failure

Farmers in the salt intrusion areas in the southern part of the Delta, who primarily practice monoculture, had a longer paddy growing period. This contributed to a longer agriculture loan cycle with three more repayment instalments, and hence more interest, than in other areas. Moreover, the yield of monsoon paddy is lower compared to summer rice with a higher risk of crop failure. For double cropping farmers, the summer rice can guarantee profits, even if the farmers experience lower yields from monsoon paddy.

PGMF's microfinance support was initially modelled on a uniform agricultural loan product for all areas in the Delta. However, farmers in the southern part of Delta experienced more difficulty in repaying both their principal as well as bi-weekly interest charges.

Future Challenges and Opportunities

1. New microfinance providers may increase the loan burden of smallholder farmers and the poor in the Delta

Many microfinance providers have started entering the Delta area and they are also providing agricultural credit to the local community. While it *looks like* a good opportunity for the community to gain access to financial services from a variety of microfinance providers, it also poses the risk of contributing to indebtedness among beneficiaries. A reason for this is that the new providers compete

with PGMF by offering less rigorous borrowing and repayment conditions. This encourages farmers to take loans without sufficient awareness of the need to put them to productive use. In some cases, beneficiaries are using loans from one source to repay previous debts from other service providers, which could lead to a vicious cycle of indebtedness. There is therefore a growing need for financial service providers to improve their coordination and share the information with the support of local authorities and the MMSE in order to avoid the risks of beneficiary overlapping.

2. Loan ceiling limited by MMSE

MMSE limited the maximum loan amount as 500,000 MMT per loan in 2014 which is sufficient for the cost of a maximum of three acres cultivation. This affects farmers with more land and who may need more capital for their farming activities. Therefore, they have to take other credit assistance with different condition to fulfil their needs. From early 2015 the maximum loan amount was increased up to 5 million MMK.

3. Bi-weekly interest payments creates burden for farmers

The PGMF requirement for a balloon payment for the capital at the end of the loan term fits well with the business nature of farmers. By contrast, bi-weekly interest payments may create an additional burden for farmers. Although PGMF requires the village-level MFC to ensure that borrowers have a regular income from alternative livelihood activities when screening loan applications, some farmers face difficulties in paying the regular interest at certain times. As a quick solution, they may borrow money from other money lenders to pay an instalment. On the other hand, spreading out the regular interest into bi-weekly payments ensures that farmers get a better benefit at harvest time as they only have to repay the principal. The burden to pay all the interest due by the whole period of loan is therefore greatly reduced. A 500,000 MMK loan for 6 months will require interest of 75,000 MMK, which is a significant amount to add on to the principal repayment.

Upgrading Village-Based Rice Mills: How to Make Benefits Trickle Down to Farmers

Mercy Corps (MC) and Welthungerhilfe (WHH)

Despite the comparatively high investment costs, the upgrading of rice mills has significantly expanded the milling capacity and outturn, as well as the quality of rice milled in small mills at village level. However most of the benefits remain with the rice millers unless these quality improvements trigger a demand for higher quality paddy. This in turn is dependent on other interventions to increase the capacity of smallholder farmers to improve post-harvest operations, increase storage and organise collective bulk selling.

The Mercy Corps project has been able to generate more immediate benefits for smallholder farmers by negotiating lower milling tariffs. However, most farmers sell their rice as paddy and only mill small amounts for their own consumption. More significant benefits will be generated by the repayment of the project investment by the millers to the village revolving funds as in WHH project.

Background and Objectives

Mercy Corps (MC) and Welthungerhilfe (WHH) projects in the Delta aim at strengthening farmers' position in the rice value chain. In order to improve the quality – and therewith the marketability – of the products, both organisations supported upgrading of small village-based rice mills in Labutta (MC) and Bogale (WHH) Townships.

Losses due to poor milling operations in Myanmar are presumed to be around 10 per cent (Foot, 2010). Many old rice mills use inefficient and expensive power supply systems and outdated equipment (milling stones, polishers and sieves). Poorly equipped mills that are not maintained regularly, or are managed by unskilled operators, produce low quality milled rice irrespective of the quality of the paddy milled. Many small millers lack the investment capacity to maintain, repair and upgrade their mills. Hence they mainly supply the local market with relatively poor quality rice for consumption and are not reaching higher value market. Small millers are therefore unwilling to pay higher value for good quality paddy from the local farmers.

This is a strong constraint to the integration of farmers in the rice value chain and to their capacity to add value to their products by improving post-harvest and storage systems. The project assumption is that upgrading of these small rice mills will allow them to reach higher value markets in the long run and to pay higher price for the farmers' paddy. They may also purchase more paddy locally, limiting the farmer's dependency on outside brokers whom they distrust. The relationship between the local farmers and the village miller is crucial to the success of this activity.

Approaches and Processes

MC and WHH targeted small rice mills at village level because they are accessible directly by the farmers without the need for intermediaries or brokers. These millers have often built trusted relationships with the local farmers. They also play an important role in supplying local markets. Moreover, they do not require access to large investments, while larger rice mills at township level require much higher investment levels that are inaccessible for the project.

Due to their limited milling capacity (<5 metric tons/day), the village mills can process smaller quantities. The mill size is critical for smallholder farmers to access the service. Even at a reduced milling fee, most farmers cannot mill more than 60 baskets, whereas some of them may be interested to mill smaller quantities. In principle, a farmer would be able to directly mill his or her production rather than selling it as paddy, and hence potentially access new marketing opportunities.

Mercy Corps funded the upgrade of 30 village mills in 2012 and provided additional investments to 18 of these mills in 2014. In 2013, WHH upgraded six local rice mills.

Comparison between three investments to support village rice mills:

	WHH (2013)	Mercy Corps (2012)	Mercy Corps (2014)
# Rice mills upgraded	6	30	18
Mill size (milling capacity)	6 small (<5-tons / day)	1 large (>20 tons/ day) 9 medium (5-8 tons/ day) 20 small (<5 tons/ day)	1 medium (5-8 tons/day) 17 small (<5 tons/day)
Project investment per rice mill (million MMK)	2.1 – 11.1	1 – 15	2 – 3
Total amount provided (million MMK)	32.1	97.7	42
Number of rice mills assessed by the technician	13 mills	34 rice mills	None
Selection requirement	Location, capacity, condition and interest of rice millers after participating in full business planning processes	Official license and a recommendation from the township Myanmar Rice Association.	<ul style="list-style-type: none"> - Best performing mills amongst the 30 upgraded in 2012 - Recommendation by the local FPE and the Myanmar Rice

			Association
Number of millers trained to prepare a business plan	11 millers	33 millers	None
Transaction of support and contract	<p>In-kind support to rice mill owner</p> <p>Quotation and selection made by rice millers</p> <p>Contract for the loan between VDC and miller</p> <p>Beside the equipment, the rice miller has to contribute for the required modifications to the building and the installation by technical staff.</p>	<p>Direct cash grant to rice mill owner</p> <p>Agreement between MC and individual millers</p> <p>25 per cent investment by the miller</p>	<p>Loan is provided to the FPE and then to the miller</p> <p>2 contracts: MC grant to FPE and FPE loan to rice mill owner</p>
Repayment protocol	<p>Loan with 1 per cent per month interest rate</p> <p>Repayment in 5 instalments over 18 months to a bank account managed by two rice mill owners and a WHH staff (account not opened yet)</p>	<p>Grant with no repayment.</p> <p>Discount milling fee, free storage and transportation service for FPE members</p>	<p>Loan with 1 per cent per month interest rate</p> <p>Repayment in 2 instalments after 6 and 12 months to the FPE group</p>
Utilisation of repayment	The fund will be allocated to the VDC for local development activities preferable into a revolving system.	Not applicable	The fund will be used by the FPE for purchasing farm equipment and/or paddy business.
Result of rice mill upgrading	Increase about 30 per cent of milling capacity	Not mentioned	Not applicable (yet)
Followed up after upgrading	<p>Assessment of the profits for both farmers and rice millers</p> <p>Quality monitoring and evaluation by a technician</p>	Monitoring visits	Not applicable

MC and WHH followed a similar process to deliver support to the small rice millers:

1. The project identified the eligible mills according to a set of criteria; such as small scale (with milling capacity of 1-5 ton/day with upgrading intervention affordable by the project budget; village or village tract based to reduce transportation costs)
2. The millers prepare a business plan with the support of the Business Capacity Building Centre (BCBC)
3. A trusted mill technician assesses the mills, advises and checks the millers' plans
4. A committee composed by project staff and milling technical expert, evaluates and approves the relevant business proposals (MC)
5. Each miller signs a contract with the project
6. The project collects quotations for the required equipment and selects the suppliers together with the millers (for WHH) or provide cash for the upgrading (MC)
7. The millers provide the agreed contribution
8. The mills are upgraded
9. The project follows up and evaluates the mills' performance

While MC provided the investment support in cash to the miller who had to contribute 25 per cent of the total costs, WHH delivered the equipment in kind and the miller had contribute to 35 per cent of the total costs through additional investments (e.g. repairing the floor or the roof), paying the technician's salary and the costs for the equipment transportation to the mill.

WHH and Mercy Corps have different systems for passing on some benefits from the millers to the local community through different contractual arrangements with the millers:

MC project strategy was to provide cash grants to 30 small-scale millers to upgrade the milling facilities. In return, the millers would provide a reduced milling price to FPE (Farmers Producers Enterprise) members, which reduced the farmers' costs. There was also a scheme that required participating millers to return the bran and husks to the FPE members, who would use these by-products for livestock feed and fuel, respectively.

Millers supported by WHH did not have to offer such benefits to their customers, but the project investment had to be reimbursed in full over a period of two years with an interest of 1 per cent per month paid in instalments every three to six months. The reimbursements were collected in a common bank account open by WHH and representatives from the millers. The reimbursed money was to be used to fund agri-business investment proposals by villagers. These beneficiaries would in turn have to reimburse the loans to their respective village revolving funds managed by the VDCs. In this way, the millers would not be the only ones to benefit from the project investment as the money would revolve to other agri-businesses in the village.

After noting the limited use of the milling services at the lower rates reserved for farmers, MC changed its approach. In 2013, in a second phase of rice miller upgrades, the project provided additional financing for further improvements to 18 small-scale mills. Most of these had already received financing in the first phase of mill upgrades. The second phase of financing for the millers was in the form of a project loan

that was to be repaid in two instalments after 6 and 12 months at one percent interest, not to the project but to the FPE groups. This repayment seeded revolving loan funds for the FPEs. The farmers groups intend to use the repayments for investing in various agri-businesses.

Lessons

1. Milling capacity and outturn has increased allowing for lower costs and increased profitability

Most of the upgraded mills have increased their milling capacity from about 15-30 to 20-40 baskets per hour while the milling outturn progressed from around 35-40 per cent to 45-48 per cent. The rice quality is higher and the amount of broken rice has been reduced.

The upgraded mills supported by WHH have increased their milling capacity by an average of 5 additional baskets per hour and their milling outturn by 14 per cent.

WHH (Bogale)			
Village	Rice Mill	Milling Capacity (baskets/hour)	
		Before upgrade	After upgrade
Tha Pyae Kone	Aung Zabu Aung	35	35-40
Boe Hlaing Chaung	Pyae Sone Aung	18	35-40
Ywar Than Shae	Sein Aung Bo	20	30- 35
Ah Kal Chaung	Thein Than Phyto	20	20-25
Mae Taw Su	Yata Nar Thein	15	18-20
Mote Soe Chaung	Zayar Aung	30	40
Mercy Corps (Labutta)			
Ka Ka Yan	Khaing Tha Zin	20-22	20-24
Kyu Taw	Htee Gyi	15-18	18-20
Chue	Baing Daunt Chaung	15-18	18-20
Pyin Htaung Twin	Aung Za Byu Htun	15-18	18-20
Kyu Taw	Ya Pee	15-18	18-20
Myin Ka Kone	Ya Danar Aung	15-18	18-20
Pyin Htaung Twin	Min Min Soe	15-18	18-20
Boe Kone	Aung Su Pan	20-22	20-24
Ohn Pin Su	Aung Myinttar	15-18	18-20
Paine Hnee Taung	Aung Myo Myint	20-22	20-24
Paine Hnee Taung	Soe Yadanar	15-18	18-20
Yae Phyu Kan	Thein Than San	15-18	18-20

Da Yal Phyu Gyi	La Win Thar	15-18	18-20
Ka Zauk	Myoe Gone Yee	15-18	18-20
Ka Nyin Kone	Min Htet Kaung	20-22	20-24
Ka Nyin Kone	Cho Yadanar	20-22	20-24
Ka Ka Yan	Aung Thitsar	15-18	18-20
Aung Hla	Shwe Pyi Aung	15-18	18-20
Htin Pone Kwin	Kyaw Yadanar Thein	15-18	18-20
Ah Mat	Win Myinttar	15-18	18-20
Yae Twin Kone	Mya Myint Mol	15-18	18-20
Nga Dan Tayar	Aung Thu Kha	15-18	18-20
Sit Kwe	Toe Tet Aung	15-18	18-20
Leik Thit	Ah Mae Aein	15-18	18-20
Ohn Pin Su	Aung Da Na Paing	80-100	90-120
Paine Hnee Kone	Mya Yadanar	15-18	18-20

Some millers have also invested in gasifiers to reduce their energy costs and improve their efficiency. These results have produced additional incomes for the small rice millers and a better economic viability in the long run.

Mercy Corps monitored the rice quality of upgraded milling facilities in 2013, and millers confirmed that rice milled at their facilities was fetching 24 per cent higher prices to their buyers as a result of upgrades in 2012

2. *Milling quality has increased allowing for better marketing, but farmers do not consume high quality rice. Local markets tolerate a higher percentage of broken rice than in urban markets*

Investments in small-scale rice millers, those who only mill for consumption and trade paddy at local markets, where quality milled rice is not a demand characteristic, are not the appropriate intervention to develop the rice market in and beyond the Delta for higher-end markets.

This strategy was unsuccessful because the small-scale miller's equipment could not produce milled rice with sufficient quality for large markets, even after project support to upgrade the equipment. Qualitative findings further indicated that the majority of small-scale millers were too remote for the rice buyers outside of Labutta; the associated transport costs for the rice were too high.

In the next phase the project will support linkages with regional and Yangon markets and will work with large scale millers.

3. *The farmers don't benefit much from lower milling fees. Most of them sell paddy to the miller or mill very small quantities for food consumption*

To measure the benefits that reached small farmers, the MC team asked the farmer groups to record the amount of rice milled, the amounts transported and stored freely at the mill and the milling fee discount offered to the farmers. The data was later on collected and compiled by the project team.

Rice farmers usually dry and thresh the harvest themselves and sell the paddy to millers or brokers from nearby towns who collect the product at the farm gate and often at comparatively low prices. The farmers who mill their paddy at the small village mills do so mostly for their own consumption, without the opportunity to sell the rice at a higher price. Farmers who wanted to sell rice instead sold their unmilled rice to the larger millers or other buyers, which did not result in a higher price as a result of improved local milling capacity

Small-scale millers milled only for local consumption; the primary benefit was in increase in household consumption of better quality rice; any economic return was limited.

4. Smallholder farmers cannot mill their paddy for self-consumption due to minimum quantity requirements by the millers

Although the project was to offer a convenient and cheaper milling service to the small farmers for their own consumption of rice, millers often cannot accept the request of the poor and small farmers to start the milling process for only a small quantity of paddy. The usual minimum quantity is at least 50 baskets, while smallholder farmers usually deliver 3-4 baskets for milling. In order to make one milling cycle feasible, farmers would have to organise themselves into groups of 12-15 members with the same variety of rice for milling, which is very difficult to organise.

5. It is preferable to support these investments through cheap loans rather than full grants that have little direct impact on smallholder farmers

As MC noted, the limited use of the service by FPE members and the relatively modest benefit in comparison to the investment provided to the millers (only 15 per cent of the total upgrading cost), MC decided to shift to a different approach, similar to WHH, for new investments.

With the remaining budget MC provided direct grants to the farmers groups. Rice millers could then borrow money from the groups at a one per cent monthly interest. This approach has strengthened the relationship and the commitment between the farmers and the rice millers. The repayments by rice millers can be used to support other farmers' production or storage and marketing activities as well.

6. From the very beginning, farmer groups and/or the VDC need to be involved in the contractual arrangements as well as management of the loan delivery and reimbursement

Some rice millers who had received grants did not adhere to their contribution plan as stated in the contract. The respective village farmers were not involved and could not put pressure on the millers because the contract was only signed with MC team.

Some rice millers were only interested in dealing with brokers who could supply over 60 tons of paddy a day for milling. MC was unable to follow the complaints from villagers and to resolve these issues. With

the farmer groups directly involved in the contract these issues are reduced and resolved locally by the villagers.

As trust gradually developed between the millers and the farmers, this has been the foundation for contract farming agreements.

Future Challenges and Opportunities

1. This activity requires careful planning and sufficient time to assess and negotiate with the millers

The elaboration of sound business plans with all rice millers was very necessary and useful, but also took considerable time. Also, all rice mills needed different machinery parts, which were not all immediately available. Many parts had to be modified or adapted. Each situation therefore required careful assessment and negotiation.

Due to the obligation to repay the investment, a significant number of millers withdrew from the WHH scheme after preparing their business plan. Over 13 were surveyed and approved, while only six followed up with the upgrade. This result in itself shows the importance of basing the assessment on a sound business case. While this makes the loan less attractive for the millers, it forces them to consider carefully whether they want to invest or not.

2. Farmer groups need organisational capacity, business management and communication skills to deal with private service providers and become integrated in the rice value chain

While better cultivation and post-harvest practices are crucial, the farmers also need better skills to understand the market, organise themselves collectively and negotiate with market players such as millers. Contractual arrangements are very new to them. The team facilitation has been crucial in dealing with the millers and ensuring that benefits are shared with the local farmers. More capacity building is needed to ensure that they manage these relationships independently.

3. Additional benefits for smallholder farmers can be generated only if they can work collectively to increase quality and store and sell larger quantities of paddy to the millers

Many rice millers not only provide milling services, but seek to purchase the paddy in bulk and sell the milled rice for a higher price. These millers have a high interest to purchase the paddy right after harvest, when prices are low.

The rice mill owners prefer to mill large quantities of the same variety of paddy - it is much more efficient. Only large farm holders produce the required quantities of paddy while smallholder farmers can supply only limited quantities for different varieties and qualities. The miller will not offer a better price for a better quality if the amount is small as it is not economical to mill it separately. He will have to mix it with other farmers' paddy to reach a sufficient quantity for milling.

It is therefore seems crucial for smallholder farmers to organise themselves in groups to market their best quality paddy. Nevertheless, such organisations do not occur spontaneously as most farmers are

indebted and have to sell their paddy as quick as possible after harvest to repay their debts and invest for the following cropping season. Programmes to support collective organisation, and post-harvest storage and quality control are crucial if farmers are to fetch better prices. It is important to integrate the support to rice mills with these kinds of interventions. This is notably what MC is attempting through contract farming and WHH-GRET through their PFS and IC schemes.

Contract Farming in the Delta

Mercy Corps (MC)

Local farmers and rice millers in Labutta Township gained stronger business working relationships through new experiences in contract farming. Their successful experience led them to consider more options for business engagement for their mutual benefit. The contractual agreements led both farmers and millers to start working to develop better quality of product in the rice value chain.

Background and Objectives

Mercy Corps (MC) and local organisation partner, Ar Yone Oo, have facilitated the formation of 55 producer groups of resource constrained farmers, known as farmer producer enterprises (FPEs), including over 2,100 farmers in Labutta Township (each FPE usually comprises three villages and a total of 50 farmers).

In the first phase of its [Beyond Recovery Programme](#), MC focused on facilitating contractual agreements between farmers and input suppliers for the production of green gram. This met with some success, with one input supplier providing credit in the form of fertiliser and pesticides to farmers in eight village tracts in 2011 and 2012, and receiving repayment at harvest time. While the system worked well, it failed to materialise as a scalable and sustainable solution for several reasons: farmers were not enthusiastic about the organic fertiliser provided by the supplier; there were disagreements about market prices at harvest time; and then in 2013 the input supplier closed down their Labutta branch.

In 2014, with the benefit of this experience, the project initiated linkages between FPEs and eight large-rice scale millers (8- 15 tons/day output). To support this model, 11 rice collection stores were constructed for FPE groups. This agreement enabled a bulking and collective selling strategy (group marketing). By 2015 there were contractual agreements in place between eight mills and 22 FPEs. The mills are necessarily medium to large in size and capacity (at least 800 baskets/day), able to mill rice to a relatively high quality, and can sell their output to higher-value Yangon markets.

Approaches and Processes

In discussion with FPEs, MC learned more about the ongoing situation faced by small and medium landholder farmers, including their urgent need to sell portions of their paddy just after the harvest to repay their debts and avoid further interest payments on loans. However, selling at harvest time means the farm gate prices offered by traders are at their lowest rate. On the other hand, farmers who are able to keep a portion of their rice to wait and sell when prices are more favourable faced the constraint of lack of storage space to properly keep their harvest.

To start with, the project selected nine middle and high performing FPEs and also identified six rice millers located near the FPEs village cluster. The FPEs received a MC cash grant to partially cover the costs (75 per cent) of constructing rice storage units with a capacity for 5,000 to 8,500 paddy baskets.

In combination with this, MC also provided FPEs with a start-up capital grant at harvest time (amounting to 5 million MMK) in order to purchase and store the harvested paddy of member farmers through an advance payment system. This start-up FPE purchasing capital provided access to these FPEs to participate and benefit in the FPE Storage Unit service. The paddy is stored for 4-5 months so it can be sold when market prices have peaked. After deducting the management costs, the benefit is shared among the member farmers with a small portion being reinvested in the capital. This was the first time ever for farmers of the target villages to sell in bulk through an agreement with a local large-scale miller.

This model was supplemented by efforts to improve rice quality by working with the same large-scale millers to distribute high quality rice seed to FPEs at the start of planting season, and in exchange FPEs would return the same amount of rice seed of a similar quality back to the miller at the end of the season. FPEs could sell the remainder of rice seed to the same miller at market price with free transport if the amount was high enough.

Among other issues faced by FPEs were difficulties in accessing sufficient quality fertiliser on time and the lack of finances to purchase it. The national-level input supply company, Myanmar Awba, was recognized as a reliable fertiliser supplier company beginning to retail their products in the Labutta area. FPEs found most other locally available Chinese-produced fertilisers to be of less quality and most unreliable. After being introduced to Awba, rice millers and FPEs representatives reached an agreement with Myanmar Awba to channel fertiliser products through the existing contracted millers to FPEs on a credit basis.

In total, the project facilitated contracts between 22 FPEs and the eight large-scale millers, and contracts between six large-scale millers and one input retailer (Awba).

Methodological Approach:

THE CONTRACT: It is necessary that the two parties in the contract farming carry out their roles and responsibilities. Mercy Corps played a role as 'honest broker,' as both parties agree on terms, and provides capacity building to both parties, for example on business aspects of the contractual arrangements. In the contract signed between FPEs and millers the stipulations agreed by each of the parties generally include the following:

Millers agree to:

- *Work with three main leaders (the Committee) of the FPE for rice trading (price negotiation, payment and rice transport etc.). These leaders represent the group*
- *Purchase only good quality rice of three main varieties. Quality of rice will be identified with representative committee members and the rice miller*
- *Jointly decide with the Committee on a single month (time of selling) and millers agree to offer market price of rice in the time of selling. (Millers want to transport one large bulk of rice to their location one single trip rather than multiple trips)*
- *Offer reduced milling charges for all FPE (MC) members. Mercy Corps provides the list of FPE members and their acres grown*
- *Provide cash advance for FPE members (about 30 per cent of rice stored in the collection store) with no interest rate. Committee has to confirm and give grantee of quantity stored in the collection store*
- *Provide free transport of rice (minimum 500 baskets) which will be sold to the miller*
- *Offer market price at the selling time. (The rice miller will offer a better price if the quality is good and quantity is bulky)*
- *Offer lower price for poor quality paddy*

FPE's agree to:

- *FPE Committee guarantees to sell the paddy of FPEs who received cash advance from the rice miller (if they got a cash advance for 30 baskets they have to sell 100 baskets to the rice miller at market price because rice miller has offered cash advance for 30 per cent of rice stored in collection store)*
- *FPE Committee ensures that equipment used for measuring weight is of acceptable standard and quality*
- *FPE agrees to keep their rice in good quality (dried, purified paddy, fewer percentage of unfilled grain and free from grids etc.)*
- *FPE members agree to sell their paddy at the time agreed by both parties and based on market price at that time (using Myaung Mya or Yangon market price)*
- *FPE has right to deny selling if price offered by miller is lower than market price*
- *FPE committee will coordinate with miller for transport of rice and cash payment*

- *FPE committee has to guarantee the rice miller to sell their stored rice to the contracted miller provided that the miller offers the agreed market price*

Lessons

- 1) The contract is serving the function of sharing and reducing risk for both FPE members and the miller. The guaranteed purchase secures incomes and encourages farmers to increasingly know about different varieties and the importance for producing higher quality and quantity. For the miller, the guaranteed supply is encouraging stronger investment.
- 2) Even though Mercy Corps and FPEs followed their obligations as per the contracts, some expected benefits to the farmers from selling in bulk were limited due to market price. The expected benefit of increased profits to the farmer by selling in bulk is sometimes still limited due to market dynamics. In some cases, the price of rice did not rise 4-5 months after harvest and rice remained in storage unit.
- 3) Easy access by both the FPEs and millers and benefits accrued to both parties as well. For millers the benefit is a secure, regular supply at desired quality levels, while farmers benefit from guaranteed market and access to inputs on credit.
- 4) To date, both farmers and millers are generally observing their commitments according to contract with only few occasions arising for need for conflict resolution between parties. During contract signing, village tract authorities endorse and sign each contract as a witness, and provide support to ensure both parties fulfil obligations. In future interventions, Mercy Corps will work with legal experts, millers and FPEs to develop a mutually agreeable conflict resolution mechanism, but presently it is based on mutual trust.
- 5) As a result of millers taking the role of providing fertiliser and seed, and expanding the contractual relationship to include these inputs, the farmers are increasingly able to access much needed credit and pay debts on time.
- 6) Having had a successful first experience of mutual benefit from business exchanges, millers and FPEs have proactively taken their own steps to develop additional business ventures that are mutually beneficial. For example, after the first round of contract farming, rice millers offered some amounts of cash to the FPEs for secure storing of 30 per cent of paddy. Next, the rice millers and some FPE members began discussing access to better seed, and subsequently about issues of poor quality fertiliser in the Labutta retail outlets.
- 7) With their first-time establishment of a business relationship with large-scale millers, farmers had better access to market information, as well as increased understanding of the rice value chain.

8) FPEs participation in contract farming led to increased access to information. Millers made information about prices and demand (i.e. from upper Myanmar) for certain rice varieties available to FPEs.

9) There is a risk, however, that millers may monopolize the market by taking advantage of the exclusive relationship set up between FPE and miller.

Future Challenges and Opportunities

For FPEs to become more viable business partners in the Labutta rice value chain there is need for further capacity building.

Rice production and marketing is a business and the FPEs need sound business plans that reflect their assessment of current and future economic and financial aspects and where they can take advantage of opportunities. This will necessitate finding the sources that can provide good practical training and technical services on a market-led and FPE demand basis.

Section 3: Turning Income Generating Activities into Profitable Business

Introducing Mangrove Friendly Aquaculture in Labutta

Adventist Development and Relief Agency (ADRA)

Mangrove friendly aquaculture offers an alternative livelihood option for poor and landless farmers in the Delta area to breed crabs, prawn and different species of fish, and increase their household incomes during the time when river fishing is lean or when farmers are awaiting for the harvest season. The mangrove-friendly aquaculture ponds could contribute to income (inputs for value-added processing) plus protection and heightened value for the mangroves. Main constraints identified in group aquaculture are related to current land use restrictions, villager's limited time and management capacity. Collective aquaculture therefore appears to be difficult to organise in the Delta context.

Background and Objectives

This activity was implemented by the Myanmar Adventist Development and Relief Agency (ADRA-Myanmar) in the framework of their project '[Sustainable Community Alternative Livelihood Enhancement to Undermine Poverty](#)' (SCALE-UP). As part of a consortium with ECODEV (Economically Progressive Ecosystem Development group), the project aimed to establish 50 community managed aquaculture ponds in 16 villages of Labutta Township.

In southern Labutta Township, where farmers have transformed some of the mangrove and associated forest areas to paddy fields, small-scale fishing remains an important subsistence and income-generating activity for landless and poor communities in the targeted project villages. Such activities include medium and small-scale off-shore and on-shore fishing, as well as wild-capture of river-fishing. While the levels of wild catch have been declining since Cyclone Nargis in 2008, the Government does not allow the community to establish aquaculture ponds in the project area, which was once a forest reserve. The intention of the project was to convince the relevant Departments to allow the introduction of mangrove friendly aquaculture techniques as a way of maintaining the mangrove and other associated forest trees in the area.

The project design proposed an integrated model: the forestry and mangrove rehabilitation contributing income-generation (forest products and aquaculture habitat) along with community protection (windbreaks and shading) ; the mangrove-friendly aquaculture ponds contributing income (inputs for value-added processing) plus protection and heightened value for the mangroves; the processing/storage facilities and technical training allowing people to value-add from inputs gathered from either wild catch or mangrove-friendly aquaculture.

The initial idea of taking ECODEV as a consortium partner was that its expertise in the forestry sector and technical knowledge of mangrove aquaculture techniques in Vietnam would be complementary to the ADRA's experience in value chain development.

The two organisations implemented the project between June 2011 and December 2012. ECODEV supervised and implemented activities related to aquaculture and forestry sectors while ADRA-Myanmar was responsible for product development and strengthening of the aquaculture value chain. However, in December 2012, ECODEV phased out of the project and ADRA-Myanmar took responsibility for all project activities. This required modifying ADRA-Myanmar’s original programme approach and the staff structure by recruiting sector specialists and new team members in March 2013.

Approaches and Processes

The project proposed a holistic model with five integrated spheres on intervention and activities:

- 1) Environment protection and rehabilitation (nurseries, tree planting and mangrove regeneration)
- 2) Infrastructure and resources (aquaculture ponds , processing/storage facilities, processing equipment)
- 3) Capacity building (skills training, study trips, market research and linkages)
- 4) Income relief (cash- for- work)
- 5) Community development (collective group support, improved KAP, environmental awareness)

The project aimed to achieve “improved livelihood yields and production in aquaculture/fishing through access to technology and increased employment opportunity”. Under this outcome, the project planned to establish aquaculture ponds; provide technical assistance and cash for work as additional income.

The project initially focused on forestry activities, and included the formation of forest user groups (FUG). In order to ensure that the FUGs could sustainably maintain the community forests in the long run, there was need to introduce alternative income generation activities, such as raising shrimp, mud crabs and eels on community-managed mangrove aquaculture ponds. The project provided support to establish storage structures and to purchase tools and equipment to enable the FUGs to grade, process and store the produce for direct sales, and hence achieve a good market price.

Although the original project plan was to construct 50 aquaculture ponds, ECODEV had constructed 26 ponds at the time of its phase out from the project. With ADRA-Myanmar having to take care of all the activities of the project from this point, there was limited budget and time for developing the aquaculture sector. The planned additional 24 ponds were not constructed both for budget availability and timing constraints in solving local conflicts related to land use policies for pond establishment in forest areas.

Moreover, the 26 existing ponds were not suitable for culturing shrimps at the time due to poor structure conditions such as broken embankments, clogging of the drainage system due to a build-up of mud, damaged sluice gates, and no shading area in the ponds.

After evaluating the issues relating to the physical conditions of the ponds and the governance dynamics of the beneficiary community, the project decided to repair and provide continued support for only 8 out of the 26 ponds constructed by ECODEV.

Lessons

1. Many sites identified for aquaculture ponds were not suitable for aquaculture activities

Suitable land for mangrove friendly aquaculture was difficult to secure due to mismatching situations between local governance/policy related issues (land title, forest land use restrictions) and technical feasibility of the land accommodating the ponds. Although some of the land identified was physically suitable for establishing aquaculture activities, the project was not always successful in developing ponds on these sites due to problems with the type of land title or other land use restrictions. In order to meet the targets the project had to enter into discussions with local communities to explore options to lease or donate some of their own land to the project to establish aquaculture ponds. Some of the land available for the establishment of ponds, however, were not located in feasible sites because they were too close to rivers and creeks, with embankments frequently damaged by tidal movements.

Some technical problems were related to specific aquaculture products:

- Eels raised in ponds too close to rivers or creeks have sharp sense of water bodies and will dig their way through the mud to reach the adjacent water bodies.
- Some shrimps and crab species (Peneaus Species - Tiger Shrimp & Vannamei, Scylla Species - Mud Crab and Lates Calcarifer) faced problems with salinity when old water was replaced with water from nearby rivers, as the low salinity level of fresh water during the rainy season retarded their growth.

2. Market timing for mud crabs is very important as they are very sensitive to stress and shocks

Mud crabs are usually raised by fattening the young crab to reach between 50 and 70 grams. In 2013, the project started raising mud crabs in the first week of September, as the expectation was that prices would reach their peak in December/January to coincide with special events at that time, including Christmas and New Year, the Chinese New Year and the ASEAN festival. However, when the mud crabs were harvested in December, the prices unexpectedly dropped by up to 50 per cent of the usual rate. Faced with losing their investments, the aquaculture farmers put the harvested crabs back into the ponds. But due to stress and shocks, many crabs died and reduced their weight. This experience highlights the importance of first finding a market before harvesting mud crabs.

Future Challenges and Opportunities

Collective aquaculture is difficult in the Delta situation

Struggling to ensure their own survival from day to day, poor people in the Delta area have very little experience in working collectively. As aquaculture requires investing time and resources before any returns can be made, poor members of the aquaculture groups need to find alternative ways to meet their daily living requirements. This made it difficult for them to participate in all group activities. As each member's profits were calculated according to their time and labour contribution, this ultimately had an impact on the group's cohesion, with some members leaving the group. In the beginning a group may consist of six to twelve members. However, after a few months the unity and trust among each

group is lost with significant decrease in the number of members. In many cases, only two or three members would remain, mostly from the same family. Conversely, the reduction in group size may also have motivated the remaining members who would be assured a higher share in profits. The core principle of 'collectivism' is commendable in theory, but in practices the commitment to 'working together' is sometimes rather weak in the face of an individual's need.

The project should have attempted to find a model which balanced competing environmental, social and economic outcomes, but possibly this model may not yet be able to meet the immediate and critical financial needs of very poor target communities.

Whilst the 'mangrove-friendly aquaculture' ponds are an important and interesting concept for long-term protection of the mangrove forests, there is a valid question about whether, given their current financial situation, these kinds of communities would be better served by a livelihood activity that has more guaranteed returns, is more tested and proven, and produces higher returns in a shorter timeframe.

Home Gardening and Eel Farming Models

Thadar Consortium

Although collective livelihood activities for the poor are difficult to implement in the Delta area, the Thadar Consortium has successfully demonstrated an alternative model that combines individual production of Zawlone flowers and eels at household level, with collective marketing of the produce. Both home gardening and eel farming are very suitable for the poor and landless because they do not require much initial capital support. The success of the activity mainly depends on a good understanding of the market chain and collective management in marketing their produce. The incorporation of a social protection scheme further helps to secure the poor from the risks of failure.

Background and Objectives

This activity was implemented by the Thadar Consortium in the framework of their project '[Building Local Capacity for a Livelihood Systems Approach in the Ayeyarwady](#).' The project was led by Action Aid Myanmar (AAM), in collaboration with Capacity Building Initiative (CBI), Comprehensive Development Education Centre (CDEC), Pyoe Pin, and the Myanmar NGOs Network (MNN). The Implementing Partners (IPs) in the field comprised seven local NGOs, namely: NanOo Parahita; Swan Yee Development Foundation; Social Vision Services; Myanmar Ceramic Society; Myanmar Baptist Churches Union (MBCU); Thingaha Organisation; and Ratana Metta Organisation.

The landless and the poor in the Delta area primarily depend on odd jobs to survive, including their labour contribution to the farmers and landowners. They suffer when their job opportunities are scarce, particularly during the off-season periods of the year. Under these conditions it is difficult to improve the livelihood status of the poor as they struggle to meet their daily food needs.

According to a baseline assessment carried out before the project's implementation, only 26 households were involved in cultivating Zawlone flower plants, with a total of 700,000 plants under cultivation. These households made a good income from selling the flowers to brokers from urban areas. The other households could not afford to invest in the cost of cultivation for their plantations. Other poor households without adequate compound space around their homes were involved in catching eels in the rainy season, which they would sell to brokers. This sometimes necessitated stocking the eels for up to five days before the brokers came to collect them.

Against this backdrop, the overall objective of the project was to contribute to increased livelihood security and household incomes for vulnerable rural households in the Delta, through three integrated outputs: capacity building; implementing livelihood models; and social protection models. The project was implemented in 15 villages in Bogale Township and nine villages in Mawlamying Gyun Township.

Learning from the past experiences of home gardening growers and eel catching, an improved model to support the poor was designed with the specific objective of enhancing job opportunities and a regular income for the targeted beneficiaries through these two activities. This objective was also in line with

the community action plan, as stated in their village book, which was titled ‘To get a regular income for the poor.’

Approaches and Processes

After steps like selection of candidates to be ActionAid Fellows (community change-makers), CBO formation, village book evolving and identifying /prioritising community action plans, project teams carried out the livelihood developing process based on each community’s action plan.

- 1) *Fellow selection*: the project started with a community awareness raising phase, led by the project team. After introducing the project to the community, a volunteer (fellow) was selected together with the target community and respective project team in each village in order to lead project support activities and link the village community with other stakeholders.
- 2) *CBO formation*: During rapport-building with villagers and stakeholders, many existing community based organisations (CBOs) were identified and it was felt that there was need to have one common CBO that would represent the community in coordinating with external organisations. The project teams therefore encouraged community members to form an umbrella CBO in order to strengthen their capacity, streamline support to the community, and empower both the CBOs as well as individual beneficiaries to fully participate in the project. One of the main components of the project was therefore to organise a series of technical trainings throughout the project’s duration.
- 3) *Village book*: During the participatory needs assessment (PRA) exercises, members of each village produced a “Village Book” outlining the main issues for poor and vulnerable communities in the area. Among issues highlighted were: the lack of job opportunities, which leads to high migration during the off season; limited knowledge of techniques to improve their livelihood options; and the related inability to make the best use of local resources, resulting in very low income and indebtedness. Each village book provided qualitative data for planning the right activities through a community-owned action plans.
- 4) *Development of livelihood models based on action plans*:

Home Gardening

The home gardening activity was implemented by one of Thadar Consortium’s partners, Myanmar Baptist Churches Union (MBCU), in Myo Chaung village, within Kattamyin Hti Seik Yae Kyaw Village Tract of Mawlamyinyun Township. The activity targeted vulnerable households including the landless, elderly people, female-headed households, and disabled and chronically ill people. The approach used combined individual production with collective marketing of produce.

Myo Chaung village is situated along the banks of Yarzudaing River. The village is mainly accessible by river, a journey that takes one hour by motor boat from Mawlamyaingyun town. The main sources of livelihood for villagers are agriculture, home gardening, fishing, livestock breeding and odd jobs. Due to the availability of fresh water, farmers in the area grow both monsoon and summer paddy crops. According to the seasonal calendar, almost all of villagers experience a lean period for four months each year.

Based on criteria set by the community, the project prioritised 40 vulnerable households to receive support, although there were many other poor households interested in implementing home gardening activities. The selected households organised themselves into self-help groups (SHGs) of five to six members to receive initial capital support and training on agricultural production techniques. The technical training provided by the project prior to implementation was open to both beneficiaries and other interested villagers and included: planning; land preparation; systematic fertiliser use in flower cultivation; correct flower cutting techniques to ensure regular generation of new flowers; and bundling and loading techniques to minimize flower damage during transport to the market.

After the training, each beneficiary received a start-up grant of 30,000 MMK, channelled through the CBO, to purchase initial stock of 5000 seedlings. Beneficiaries agreed not to sell any flowers during the first eight months in order to enable proliferation of the plantation and increase the amount of the flowers harvested. Each beneficiary was also expected to pay back the loan through their regular earnings over a period of four months.

At the same time the livelihood project was linked to the social protection model implemented by Thadar Delta projects, whereby beneficiaries had access to the food credit system.

Within each SHG, a purchasing committee was formed to purchase good quality flower seedlings while the individual members followed the instructions of the trainer/technician to prepare the land, fence their plots and plant the seedlings.

The SHGs held cluster meetings every month to share knowledge on plantation techniques, market information and other relevant information. MBCU provided information and supported the groups in market linkages during these meetings. With the agreement of beneficiaries, SHGs chose three focal persons to represent them during the collective sale of the flowers directly to Yangon market. The focal persons received hands on trainings from project staff on collecting market information, assembling flowers from beneficiaries, transporting the produce to Yangon market, and organising money transfers.

The community earned more profits through direct sales to Yangon market than selling to brokers who came to the villages. The focal person was paid a service charge of one MMK per flower. The focal persons initially accessed information on market prices from local informers through phone contact. (Nowadays, the easy accessibility of mobile phones among villagers is contributing to more timely dissemination of market information).

Once the first batch of 40 vulnerable families involved in the home gardening project had repaid their loans, the money was used to assist new SHGs in need, as the earlier beneficiaries no longer needed to take out loans from the CBO. In 2014, a total of 109 households benefitted from the home gardening model in Myo Chaung village. In total 20,100,000 flowers were planted in the village, earning the community a total of 110,100,000 MMK in the last year alone (at an average wholesale price per flower of 12 MMK in Yangon).

The following is a typical cost and benefit analysis of a small-scale gardening beneficiary (Daw Than Nwet) after 20 months of implementing the home gardening model.

Cost for 6,000 initial seedlings

- Project support: 30,000 MMK
- Beneficiaries contribution: 41,000 MMK

After 1 year and 8 months

- Total flowers: 180,000 plants
- Regular income from flowers:-30,000 to 40,000 MMK monthly
- Saving

Distribution of the profits

- Loan repayment to village CBO
- Food
- Contribution to village bridge construction
- Pilgrimage to Bago and Kyite Hti Yoe pagoda
- Renovating the house (20,000 MMK)
- Purchasing a piece of land (180,000 MMK)
- Medical treatment for daughter (50,000 MMK)

The cooperative system functioned as a link with markets to get more profit and enable villagers to escape the debt cycle and manage their basic needs themselves. The home gardening project not only created job opportunities for villagers of Myo Chaung but also the landless labourers, especially women, from neighbouring villages. The community also constructed a 60 foot long concrete bridge using their savings from home gardening. Zawlone flowers have become the main product of Myo Chaung village.

While home gardening was introduced as an income generating activity under the livelihoods component of the project, it also provided a good practice model on how to build on production capacity building at individual level to a collective management system bringing different community members and livelihood systems. Communities also gained analytical skills during the participatory needs assessment stage conducted together with the project staff and fellows. Although the financial support provided to each beneficiary was very small, the accompanying technical and institutional support led to real changes in the lives of the poor. Moreover, experienced technicians could identify and make use of local traditional techniques and knowledge. Social protection mechanisms that were rooted in the village structures supported beneficiaries to follow their agreements with the CBOs. Emergency livelihood funding encouraged them to implement home gardening activities while food credits supported them during the early period before they could generate an income. Direct sale links to Yangon wholesale depots shortened the market chain, bypassing the brokers and leaving more profit for the producers. The improvement in the telephone communication system also supported the producers with timely information on the market situation and when to sell the flowers at a peak price.

Eel Farming

The eel farming model was implemented by one of Thadar Consortium's partners, Swan Yee Development Foundation, in three villages (Ah Si Gyi, Mya Pa Goe and Tha Pyae Kone) of Sat San village tract in Bogalay Township. Located near the Mainmahla Island sanctuary forest, this brackish area was available for farming eels for an eight-month period between May to December because of salt water intrusion and the scarcity of fresh water.

Project implementation started with a focus on capacity building and involved facilitating technical training, workshops and knowledge sharing sessions, exposure visits and other learning opportunities for IP staff. In March 2012, staff members participated in exposure visits to GRET and NAG project areas to learn about different eel farming methods. The visit enabled project staff to introduce innovations to the eel farming model by adapting some good techniques and practices of others. The data and facts from the village book produced during the participatory needs assessment also contributed to developing this model. Traditional methods of eel feed used for short term needs were studied and improved with some added value for long term eel feeding in the winter season.

Project staff then consulted with the community to develop the eel farming model and identify the type of project support needed. The role of the IPs included: collecting market information (market flow, time of peak price etc.); conducting feasibility assessments on how to implement the model within the targeted area (such as pond water conditions, traditional methods of eel feeding etc.); and sharing all the findings and the proposed model to the community. Due to negative experiences in the past, some community members were afraid of the risk of failure and reluctant to invest in the activity. However, the IP team explained that the social protection component was designed to prevent such failure by enabling farmers to recover their livelihoods in the event of uncontrollable shocks or emergencies. After the community had clearly understood the support offered by the social protection scheme, Swan Yee provided a series of technical trainings on systematic eel farming to the selected beneficiaries.

Following the training, project staff, fellows and CBOs' members acquired more information about the cost of eel stock and materials. Simultaneously, the beneficiaries prepared the eel ponds using the instructions provided during the training sessions.

Pond preparation usually takes at least 25 days, during which the pond water conditions are adapted to the requirements of eels. After testing the pond water with fish, the ponds were stocked with eight viss of baby eels (around 300 eel). Eel farmers received regular monitoring and technical support by project staff, fellows and responsible CBO members throughout the process up to eel harvesting time.

The following is a typical cost and benefit analysis of a beneficiary's eel farming activity:

Cost Per Pond

- | | |
|---|------------|
| • Cost of baby eel (8 viss per pond x 4000ks) | 32,000 MMK |
| • Tarpaulin sheet (8m x 12m per pond) 1 sheet | 21,600 MMK |
| • Bamboo (50) | 10,000 MMK |

- Labour charge for pond digging (2 person per day) 80,00 MMK
- Drain Pipe (1" PVC Pipe) 25,00 MMK
- Eel Feed (8 months) 72,000 MMK

Total cost 146,100 MMK

Selling Price

45 viss x 7,000 MMK (average Wt. 0.15 ~ 0.20 viss) 315,000 MMK

Net Profit

(Selling price – Total cost) 315,000 – 146100 168,900 MMK (21,120/MMK per month)

Lessons

1. *One-time training is not sufficient for the intended target group. A series of refresher training sessions are needed to ensure sufficient capacity is built*

Although agricultural technical training was conducted before implementing the activity, continuous monitoring and refresher trainings/workshops are needed for poor farmers. Frequent interaction among the beneficiaries through cluster meetings contributes to mutual learning, knowledge and experience sharing because the effectiveness of new techniques gained from training need to be confirmed through evidence based findings and practical experiences of peers. It is also essential that project implementers provide continued support to establish market linkages for the community to link with the wholesale market by analysing the existing situations/information within the community and comparing with the market flow of dealers.

2. *Pond embankment height and eel feeds need to be adapted according to the local context*

Instead of adhering to a fixed pond height as taught in the training, the pond embankment should be adjusted to suitable height from one to five feet depending on local flood context. The scarcity of eel feed during the winter season can also be overcome with some other alternative source of feeds like dried fish and earthworms instead of prawns and small mollusc.

3. *There is need to establish the minimum size of investment to provide effective support for a family*

During the implementation of the home gardening and eel farming activities, project staff gained a better understanding of the minimum scale of the activity to ensure effective income for a family. A typical small-scale home gardening business needs at least 25 sq. ft. of land for the initial cultivation of 5,000 plants, ensuring proliferation of up to 80,000 plants, and an adequate regular household income. For eel farming, the pond size and/or number of ponds can be increased depending on the availability of land and eel stock. A family can manage up to three ponds of 10 by eight feet. In both home gardening and eel farming, market chain assessment must be conducted to understand the nature of Yangon market demand, including its variability price at different time and seasons. It is crucial for the project to provide systematic training and monitoring of each process, as well as support in record keeping to enhance contextualization of each activity.

Future Challenges and Opportunities

1. The capacity of the CBOs needs to be strengthened for sustainable support to the home gardening and eel farming

An important factor in successful community-led projects is ensuring that each village has a capable CBO to monitor and support the livelihood activities. Among other roles, the CBO needs to make sure that the beneficiaries follow commonly agreed procedures. The provision of systematic training and monitoring of each process are also essential. Moreover, experienced technical persons play an important role in adapting the project to the local context.

Strong mechanisms for community involvement need to be established to underpin the entire process, starting from the initial consultation with the community to develop improved techniques and clear guidelines for implementing the project, including monitoring mechanisms. New participants also need assistance with their business plan development and initial capital support.

2. Eel farming is difficult during the summer season due to the scarcity of fresh water

Although the poor want to raise eels throughout the year, they are constrained by the scarcity of fresh water during the summer season. Moreover, salt water intrusion always occurs in the summer season in the lower parts of Bogale. Additional problems include the risk of poisoning due to water pollution from chemical fertilisers and pesticides used during the summer paddy cultivation.

Fuel Efficient Stove Production and Marketing in the Delta

Mangrove Service Network (MSN)

MSN introduced the production of self-made efficient stoves since 2003 to the communities of many townships in Myanmar including the Ayeyarwady Delta. MSN trained stove making technique and supported stove making equipment. The objective is for the community to produce raw quality stoves themselves in a simple and easy way. Providing support to local entrepreneurs to establish businesses to finish and market fuel-efficient stoves that are supplied by landless groups helps to create livelihood opportunities while contributing to a reduced demand for fuelwood and enhancing forest conservation and the resilience of the environment.

Background and Objectives

This activity was implemented by Mangrove Service Network (MSN) in the framework of their project '[Strengthening Capacity and Market Opportunity for Locally Promising Energy-saving Stove and Quality Tree Saplings in the Delta.](#)' Four local business groups were established to produce and market the fuel efficient stoves in the three year project period for 16,000 households in 119 villages in Bogale and Mawlamyinekyun townships.

Along with degradation of mangrove forest in the Ayeyarwady Delta, resulting in increasing scarcity of forestry products including fuelwood, the local communities suffer from more frequent natural disasters.

Over 95 per cent of households in the Delta area use three-stone wood fires for their daily cooking. The remaining five per cent use charcoal and rice husk stoves. The three-stone stove is not energy efficient, requiring larger quantities of fuelwood, which contributes to deforestation. Moreover, due to over exploitation of mangrove forest products in the past, it is difficult for the rural community to find wood for construction and fuel. This makes household expenditure on fuel excessively high for local families. According to results from a household demand and market survey conducted by the project in 2011, the average cost for fuel for families using three-stone stoves is 18,000 – 24,000 MMK a month, with some families spending up to 30,000 MMK on fuelwood. The reason for the low use of fuel-efficient stoves such as Pathein and limestone stoves (produced in Ngaputaw) is that these are not readily available in the rural areas and poor households cannot afford the purchasing cost, or the cost of fuel.

One of the main objectives of the project was therefore to help establish a number of local business entrepreneur groups who could produce quality and affordable fuel-efficient stoves for communities in the two townships. The project aimed not only to enhance local business skills and income generation opportunities, but also to promote the mass utilisation of fuel-efficient stoves by a majority of households, hence protecting the remaining mangrove and other forests from over exploitation.

Approaches and Processes

Under this LIFT project, the approach was to introduce stove production activities as an income generating opportunity for raw stove makers in the villages who would then sell the stoves to

entrepreneur groups with stove baking units. The groups would in turn earn money by selling the baked and finished stoves extensively in the area.

At the beginning of the project, Village Environmental Conservation Committees were formed in 119 villages to organise village stove utilisation activities. Four Zone Committees (two each in two townships) were formed to steer the four stove baking groups (two each in two townships). A stove baking group consisted of three men and three women who are interested in the establishment of the stove production business.

As this was a completely new approach, the project facilitated peer learning with other successful stove producers, and contributed to knowledge sharing on how to improve their production and business. The issues addressed included how to monitor market demand, conduct a SWOT analysis, and apply improved practices found through research and development processes. To increase the competitiveness of stove producers, emphasis was placed on ensuring quality products at an affordable price. Marketing of the stoves took place through direct door to door services to local users, with some wholesale transactions at groceries at villages and towns are applied. The stove producers practiced sales promotion through such offers as providing an extra stove and a T-shirt for every ten units sold. The project also provided management support for the stove baking entrepreneur group, covering such issues as how to make a clear division of work among members for harmonious and synchronised production.

The sharing of profits from the stove production businesses was organised as follows: 50 per cent of the went to group members; 25 per cent was shared with respective zone villages (as in kind-stoves); 20 per cent was reinvested to grow the business; and 5 per cent was given as a contribution to the social welfare of the participating villages.

The following diagram illustrates the process of stove production and marketing:



During the initial stages, the project provided the following training to landless households and women living in project villages in the two townships:

- (a) Green stove making training to interested villagers from all project villages (119)
- (b) Training in stove baking and small business management to members from four stove production groups
- (c) Marketing training for members from the four stove production groups

The project provided equipment for raw stove making to all trainees. It also provided support to four stove production groups to acquire start-up equipment such as baking kilns and production tools, as well as marketing tools such as boat engines, posters, hand outs and solar dryers. Later, the project provided tin-smith training and further refresher courses to improve the stove design and drying system. The project also organised exchange visits for experience sharing among stove baking groups.

For the production of raw stoves, the stove maker collects clay and rice husks that are available in their local area. The clay and rice husks are mixed well in a 3:1 ratio, depending on quality of clay. If the clay is less sticky, the clay amount can be increased. The mixture is to rest for one night to improve the consistency and the stove maker then uses moulding equipment to produce stoves of a consistent size. After smoothing and polishing the outer and inner surface of the body, the stoves are placed in rows under the shade for air drying. Air drying takes around 5-7 days in the summer season and up to 15-20

days in the raining season. Once they are totally dry these raw stoves are ready to be baked in a kiln. If they are not earmarked for transportation and marketing elsewhere, these raw stoves are also ready for use by local villagers without being baked. Only quality raw stoves can be baked in the baking kiln.

Before starting the baking process, all dried raw stoves are placed in the baking kiln. The kiln is then heated with rice husk fuel. Baking time can range from 12 to 14 hours. When the fire is put out the stoves are kept in the kiln for another six to eight hours to gradually cool down.

In order to ensure the durability of the stoves and protect them from accidental damage during transportation, each stove is wrapped with a narrow iron strip or covered completely with an iron sheet. The group then makes arrangements to sell the stoves at the local market. This is done from boats by river vendors who move from one village to another. In smaller villages, stoves are taken from door to door, while in larger villages and town markets, stoves are sold to traders on a wholesale basis, based on a cash down payment.

Through the gradual improvement of the technical skills of raw stove producers and stove baking group members, the quality and price of stoves was acceptable to most consumers. This was evident from increased market demand not only within the project townships and but also in neighbouring township markets such as Pyapon, Kyaiklat and Kyonemangay. In the early stages of the project, the groups were only able to operate the baking kilns in the dry season, but with time, they began to process the stoves in the rainy season as well. Technology improvements were an important factor in improved productivity. They included upgrading the simple potter wheel to improved potter wheels deploying a fixed mould and cutter, and moving from manual power (stepping on the clay mixture by two men) to the use of engines. From a maximum daily production capacity of between 20 and 25 raw stoves using the simple potter wheel, stove makers were able to double their production to around 45 to 50 stoves a day. The production groups also made improvements to the stoves by adding a tin cover and a two-ear handle for better convenience during transportation.

The success achieved by the entrepreneur groups in improving their livelihood from a low and irregular income of 30,000 MMK per month to a regular income of around 80,000 MMK was reflected in a better standard of living as well as a higher social status within the community. Group members could afford to send their children to school and meet their daily subsistent needs. Moreover, they displayed significantly improved communication and negotiation skills and greater confidence in their own abilities.

Local users of the fuel efficient stoves also benefitted from reduced costs for fuelwood and more convenient cooking conditions. Ultimately, the use of efficient cooking stoves contributes to positive environmental impacts such as balancing local weather, reducing carbon dioxide (CO₂) emissions, and reducing the needs of fuel wood and de-forestation practices.

Lessons

1. *It is difficult to produce the targeted number of raw stoves in the rainy season due to humid and wet conditions*

Although the project target was to produce 71,400 raw stoves and 15,200 baked stoves in the first year, as of June 2014 only 8,883 raw stoves (12.5 per cent) and 5,925 baked stoves (39 per cent) were produced. This was a result of not factoring in the effect of unfavourable weather conditions during the project design phase. The project team subsequently revised their targets as recommended by LIFT.

2. *The design and ratio of clay to rice-husk in the mixture and air drying condition determined the quality*

Not all raw stoves produced in the beginning were suitable for baking. Many raw stoves did not meet the quality requirements for further baking and marketing due to poor design and inconsistent shape caused by the inexperienced producers. As the type of clay from one local area to another varies, the ratio of clay to rice husk of the mixture had to be adjusted based on practical results and experience to avoid cracking and damage when baked in the kiln. Moreover, some raw stoves were damaged during the drying stage due to direct contact with the high moisture of the ground. One lesson was that during the rainy season the raw stoves had to be placed on shelves and sheltered from the rain. An alternative was to use improved solar dryers. However, these adjustments led to increased production costs. The lessons from failure and successes were applied to improve the design, combination of the clay-rice husk mixture and the drying method.

3. *Producing only eight inch diameter fuel saving stoves cannot promote marketing*

Initially the baking units produced and sold all measured eight inches in diameter as preferred by the majority of users. But feedback from the market later showed that some smaller families preferred six inch stoves, while food businesses and larger families were interested in buying bigger (10 inch) stoves. The sales income was therefore significantly increased when three types of stoves were produced and marketed.

4. *In the Delta area, "sale on goods returned basis" to the grocery stores cannot be practiced yet*

Shop owners interested in stocking the improved stoves wanted producers to leave a particular number of stoves with them to sell and to collect the revenue after a certain period of time, when they would also pick up any unsold stoves or replenish the stock. In the early stage of project therefore, the group sold the stoves on a "sale on goods returned" basis to grocery stores in the local area and in towns. But the system failed to work because many shop keepers failed to settle the value of stoves at collection time as they had reinvested the cash received in other commodities. As a consequence, the working groups could not maintain the following operation cycles due to the lack of a regular turnover. The producers had to change to a "cash down payment basis" which reduced the number of stoves picked up by client grocery stores at any one time.

Future Challenges and Opportunities

Some poor villagers find it difficult to participate in entrepreneur groups due to insufficient income in the early phases and poor production and marketing skills

As it takes several production cycles before stove producers can start to earn profits, some poor members of entrepreneur groups left the producer groups and migrated to the city to find work that would meet their daily needs. Sometimes the groups were not able to find new members, forcing them to continue the business by hiring casual labour occasionally. Each township in the Delta should not have more than two production and marketing entrepreneurs.

Improving Fishery Governance System in Delta

Network Activities Group (NAG)

Fisheries governance in the Delta has improved through the formation of different levels of civil society organisations (CSOs) in villages and clusters. These organisations have helped to establish fishing development associations at township and district levels, with the aim of interacting with government stakeholders to ensure that small-scale fisher folk have access to fishing rights. However, challenges remain in advocating for policy changes at the regional government level where current tendering practices for fishing licenses encourage the payment of lump sum fees from successful bidders. Moreover, the requirement that bidders get a recommendation from the tender owner makes it difficult for fishers' development associations to get the fish collection license for their centres. Present fishing laws therefore need to be reviewed and a legal framework of fisheries co-management should be established to enable small-scale fisher folk to access their fishing rights.

Background and Objectives

This intervention was implemented by the Network Activities Group (NAG) in the framework of their project '[Improving governance in the fisheries sector as an entry point for enhanced small-scale livelihood security and the capacity of non-state actors to engage in rights-based advocacy.](#)' The project targeted poor and marginalised small-scale fisher folk in Pyapon and Dadaye Townships with the aim of contributing towards sustainable livelihood development through a governance approach.

In the Delta, the main livelihood activities of the poor and landless farmers are hampered by weak linkages and trust levels with Department of Fisheries, over-fishing and the depletion of aquatic resources, and policies and laws that favour the rich and powerful private sector groups. The target group also lacks opportunities for alternative livelihoods or other income generation activities. The project's objective was therefore to strengthen the capacity of CSOs and women and men in the fishing communities of southwest Myanmar to engage more productively in the fisheries sector.

Approaches and Processes

The project design included the following approaches/activities:

- i. Organise and strengthen institutional mechanisms that enable small-scale fisher folk to exercise their rights.
- ii. Mobilise the collective force of the small-scale fisher folk to access fishing rights.
- iii. Organise and strengthen fish-collector groups and facilitate the sharing of market information between townships.
- iv. Collaborate with the Department of Fishery (DoF) and the Fishery School to build the capacity of small-scale fisher folk to exercise their basic rights and gain access to basic services, including enhancing

their understanding of fishery laws, rules and regulations, and exploring alternative livelihood and income opportunities, such as aquaculture, processing and making/building fishing gear.

v. Establish and administer resource centres to provide regular information and knowledge related to the environment, resource management, climate change and other factors that impact fishery based livelihoods.

vi. Formation of a Fisheries Development Association (FDA) to facilitate engagement with parliamentarians, political parties and regional governments on developing regional fresh water fisheries Law and highlighting the issues faced by small-scale fisher folk in the media

vii. Pilot the fish-collecting centre under the umbrella of the FDA with the purpose of improving the fisheries value chain

viii. Pilot fishery co-management schemes to demonstrate the impact of effective management systems.

The project provided capacity building to the FDA as well as Village Development Committees (VDCs), FDCs and fishing communities. The training for the FDA included advocacy, organisational management and planning. FDA further received support to set up its financial and administrative guidelines and procedures and to facilitate networking and coordination among fisheries stakeholders and peer CSOs.

Fisheries co-management training was provided to key FDA members so that they could in turn train fishing communities in the co-management pilot area. As part of a training programme on proposal writing, FDA prepared the My Fish small grant proposal that is jointly implemented by World Fish and DoF.

Training for fishing communities focused on livelihood skills.

Stakeholder engagement and policy advocacy

The engagement strategy was driven by stakeholder power analysis throughout the project period. The analysis included two components – Power Analysis focusing on the regional, township and district level stakeholders; and Political Tracking, which focused on the national level policy and political dynamics.

As a result of the support provided to the main actors, stakeholder engagement has improved at all levels and FDA is more recognised by key stakeholders such as the Department of Fishery (DoF), Myanmar Fishery Federation (MFF), General Administration Department (GAD), tender owners, parliamentarians and regional governments. At the township and district levels, FDA has the capacity to organise awareness raising sessions on fisheries laws and rules and regulations, in collaboration with the DoF. At the village level, FDA carries out awareness raising sessions on co-management and environmental conservation together with the DoF related departments and village administrators.

Fishery policy development forums were organised three times during the lifetime of the project with the participation of national and regional government, regional parliament, officials from DoF, tender owners, fisher representatives from Ayeyarwady Region and representatives from the coastal region.

Six key recommendations from the last workshop were accepted and implemented:

1. The regional government recommended the piloting of fishery co-management in three areas , including the project target area
2. Demarcation area in Pyapon District was split into small tender lots so that small and medium level fisher folks can access with affordable prices
3. Boundary demarcation was started under the supervision of DoF, Land record Department and DoA in accordance to the instruction of the Regional government
4. Regional Minister and Deputy Speaker of Parliament agreed to have an exposure visit to Cambodia and Thailand fishery administrations to observe the fishery co-management mechanisms
5. Regional Government maintains transparency at township level DoF office for tender price and licence fees. They also declare the amount of revenue collected from the fishery sector
6. Fishery regulations allowed the fishers to access the fish collecting licence in all Tender areas.

Access to fishing rights

The Project actively influenced the Freshwater Fishery law, which has enabled small scale fishers to access temporary fishing grounds, among other benefits. Ayeyarwady Region Fresh Water Fishery Law, was promulgated in 2012. This was a result of recommendation submitted to the Regional Parliament that was based on consultation with fisher folk.

In 2013, two villages within Dadaye & Pyapon townships obtained two auction areas from the leadership of FDA. This permitted small-scale fisher folk from ten project villages and six non-project villages to catch fish, paying taxes on their produce. In 2014, one village from Pyapon Township and three villages from Dadaye Township were successful in acquiring four auction areas. For proper management of fisheries resources, co-management system was introduced and committees formed with participation of township and village level administrations.

Fishery co-management

A fisheries co-management system was established in the area where the Tender license was collectively access by fishing communities in Dadaye Township. During the initial stages, the co-management committee was organised at the cluster level with the participation of village administrators and representatives from VDCs and FDCs. A management plan was developed and roles and responsibilities of the various stakeholders were defined. A township level consultation workshop on the co-management system was subsequently conducted in Dadaye Township with the participation of representatives from MFF, FDA, fishing communities from Dadaye, the Township Development Support Committee (TDSC), parliamentarians, and officials from DoF, Forestry Department and GAD Through the workshop the Dadaye township fishery co-management committee was organised. A regional policy advocacy workshop on fisheries co-management took place where the government agreed to establish a co-management mechanism in the target area of Dadaye Township under research categories of Regional Fishery Law. In 2014, eight project villages and two non-project villages implement fishery co-management system at two tender areas in Dadaye Township.

Some recorded outcomes in co-management areas were recorded:

- conflicts arising from resource use between small scale fishers and medium big fishers in the areas have been reduced

-illegal fishing in the area has reduced

-average fish catch increased

-average fish size of the catches increased

-some native fish species were re-observed

Access to markets

FDA established a fish collecting centre in Dadaye Township where different fisheries stakeholders had been allocated a collective license. The centre has direct links with Yangon fish market and guarantees a better price and weight system. It has also established linkages with small-scale village fish collectors. In order to provide access to small-scale fish collectors who normally are constrained by the requirement for the licences; FDA consulted legal experts and submitted recommendation letters to the regional government to waive fish collecting license fees for small-scale collectors. The FDA also used the local media to raise public awareness on the fish collecting licensing process. Now, the regional government has allowed the provision of fish collection licences for tender area to non-tender holders.

Lessons

1. *The combined advocacy efforts of small-scale fishing groups and the FDA are not sufficient alone to influence policy makers at the regional level to guarantee the fishing rights of local communities*

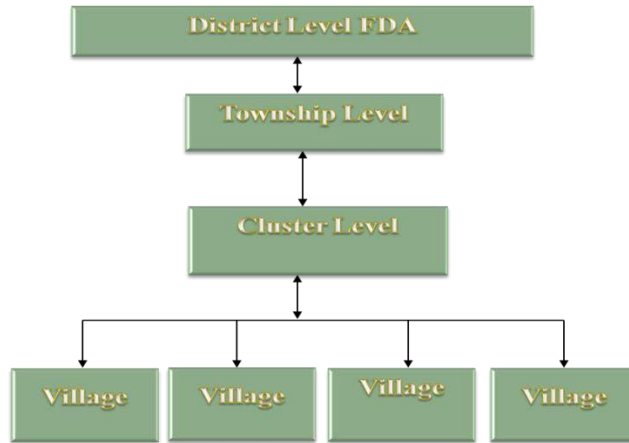
The project supported the formation of small-scale fisheries groups at the village level with the objective of improving the fishing rights of community members and ensuring that their voice would be heard at higher levels. Village level units however would have more impact if they are part of a larger collective at township level. Thus the FDA was established and their capacity was built to effectively represent the interest and concerns of small scale fisher folks at the regional level.

However, such advocacy initiatives continued to face limitations at regional level as policy makers interpret the issues raised as being limited to a few some townships and districts rather than being representative of the entire region.

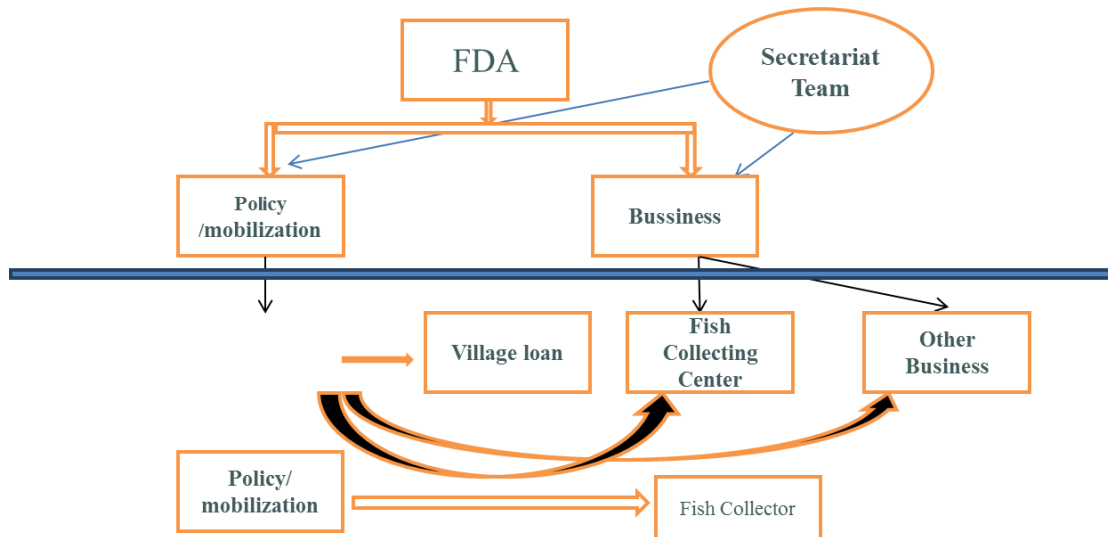
As a result the project expanded the fisher network to other districts under the umbrella of the newly formed Small Scale Fisher's Network (SSFN) which is composed of two township- based FDAs and 19 CSOs from the Delta.

Finally, the project had to consider the creation of the Secretariat Team as another layer between township and village level to overcome these organisational challenges. The following diagrams show the differences between the old FDA structure and the new re-organised structure.

Organisation structure of the previous FDA



New FDA structure



The improved FDA structure allows for an efficient communication mechanism and a more functional and independent operational environment. The re-organisation of the secretariat team led to the recruitment of two full-time staff members to replace NAG project staff that had provided support to the secretariat during the FDA formation stage. New organisational procedures such as financial, administrative and communication guidelines were also put into place. In spite of these improvements, one of the challenges faced is the increased demand on representatives of different stakeholders, who find it difficult to attend the various coordination meetings.

2. *Village fish collectors cannot get a fish collecting license without the recommendation of license owners*

The project facilitated the organisation of fish collectors (FC) at village level in order to improve their links to the value chain and boost their collective bargaining position. Despite these efforts the fish collectors continue to have limited capacity and voice to change the bonded market chain system. Besides, the small-scale fish collectors in leasable license areas cannot acquire fish collecting licenses without the recommendation of license owners. These constraints forced the FDA to establish its own fish collecting centre in Dadaye Township where a collective tender license had been allocated. By establishing direct links with Yangon fish market and guaranteeing a better price and weighing system, the FDA contributed to a better income for the small-scale fish collectors. Other efforts made by the FDA included advocating for a fish collecting license, consulting with legal experts and lobbying the regional government for free access to small-scale collectors in accordance with the constitution. Moreover, the FDA made use of the local media to disseminate advocacy messages on this issue.

Future Challenges and Opportunities

1. *The sustainability of the FDA fish collecting centre is threatened by the strategic competition of local business interests*

In the beginning, the fish collection centre run by the FDA seemed to offer an effective solution for improving market linkages for small-scale fish collectors and addressing some of the challenges posed by the existing market conditions. With time, however, a number of businessmen convinced the tender owners not to support the FDA's the request for a fish collecting licence from the regional government. Although the FDA made a direct recommendation to the regional government, it was not successful due to lack of support from the tender owner. This lack of a level playing field threatens the sustainability of the FDA's collection centre as many small-scale fish collectors incurred debts from paying the previous year's license fees and were forced to sell their fish to the license owners.

However it is critical to consistently engage with private sector actors in the fishing sector. This proved especially crucial in terms of entering a market monopolized by bigger fishing groups/companies.

2. *It is difficult to organise higher-level networking by all CSOs in the 20 townships due to differences in organisational capacities and structure, and working procedures and norms*

The project facilitated the establishment of the Small-Scale Fisheries Network with the participation of all participating CSOs from the 20 townships in the project area. This entailed implementing two steps simultaneously, organising the township level associations and establishing the regional fishery networks. Both steps were implemented with support from the CSOs and FDA.

Although the policy makers recognize the existence of the networks and collective actions, CSOs working on issues concerning small scale fishery sector have diverse focus, interest and mandates, with varying approaches and capacities. In addition power dynamics exist between stakeholders and actors at local,

regional and national levels. Moreover, some townships have strong CSOs but most of the townships only have community based informal organisations.

3. *It is difficult to replace the existing tender system to improve the rights of small-scale fishing communities*

Regional governments have become accustomed to collecting easy revenues through lump sum payments by successful bidders and the fishing tender licensing process. Limited understanding of power dynamics at national and regional levels together with the stereotypes of historical fisheries resource management made it difficult for the project to successfully advocate for the abolishment of the unequal tender system and improve the rights of small-scale fishing communities.

The project tried to balance fishery revenue collection with the goal of providing sustainable livelihoods to the small-scale fishing communities. In addition, the project tried to pilot the fishery co-management with the purpose of sustainable fisheries, balancing the economic, social and environmental aspects. The project also initiated the experience exchange mechanism between Ayeyarwady and Rakhine.

However, challenges remain in the inclusion of all stakeholders in their support for policy change. there is a need to work with governance specifically executive in terms of improving their capacity, information and sensitize them to be more responsive to local SSF rights/needs for effective implementation at the ground. The project focused on development of laws, regulations and policies for improved governance in the fishery sector; however, the implementation of those policies/laws has been limited.

Different factors and associated challenges:

Factors	Supporting Factors	Challenges
Political	<p>Democratisation and Decentralisation</p> <p>Government efforts to stop the sanctions; right to associate, freedoms of voice, etc.</p> <p>Political wiliness, public opinion and election</p>	<p>Unclear power sharing between central and regional structures</p>
Economic	<p>Open market economy</p>	<p>Open market with monopolistic practices</p> <p>Resource privatisation</p>
Social	<p>Fishing communities start to believe in collectiveness</p> <p>CSOs are established in different regions of Myanmar</p>	<p>Trust building among different parties (fishing communities, government and private sector) is a long term process</p> <p>Conflicts of interest among fishing communities, government and private</p>

	Engagement is initiated between fishing communities, government and private sector	sector Capacity and attitudes of the fishing communities in shaping fisheries governance
Technical	Fisheries co-management practices are accepted as an effective model for managing fisheries resources by governments in the ASEAN region	Limited technical understanding of co-management practices by DoF
Legal	Constitution grants state and regional authorities rights to manage inland fisheries Right to associate Media freedom	Unclear conditions for inland fisheries: revenue is given to states/ regions but no clear instructions on management the revenue from taxes of fisheries are allocated to both state and township level – but how to manage is not clear Private sector influence on policy making process Poor law enforcement and high corruption levels
Environmental	Environmental conservation is considered as one component of poverty alleviation strategies in Myanmar Evidence on deforestation and resource depletion available	There is no coordinated/integrated mechanism to manage fisheries, lands and forests

Section 4: Organising collective services

Hire Purchase Schemes

Groupe de Recherches et d'Echanges Technologiques (GRET)

Hire purchase (HP) schemes are a new financial service introduced by GRET to support smallholder farmers in the Delta to increase their production and enable landless casual labourers to expand their income generation activities through improving their equipment assets. While HP schemes are an effective tool for enhancing the livelihoods of local communities, their governance and capital ownership systems need to be well established through a focus on institutional capacity building for the management of village cluster-level organisations.

Background and Objectives

This activity is implemented by the French NGO Groupe de Recherches et d'Echanges Technologiques (GRET) in the framework of their project '[Value Chain Development for Inclusive Economic Growth in Central Bogale/Mawlamyinegyuan Townships](#)', and is jointly managed by the WHH/GRET Consortium.

One of the major issues highlighted by the farmers in Delta is the lack of access to farming equipment and inputs. Due to the significant loss of cattle and buffaloes during Cyclone Nargis in 2008, farmers in the area realised that they would need alternatives to draft animals to prepare their land. However, the available agricultural equipment in most villages is not sufficient to enable all farmers to prepare their land or thresh their paddy on time. Although some shops in Bogale town stock farm equipment, many poor and landless farmers cannot afford to invest in their own equipment due to a lack of savings and/or access to credit. Many farmers also lack the knowledge and experience to identify the equipment that will best match their needs.

GRET has been working in Myanmar since 1995 and currently serves as a LIFT implementing partner with projects in Bogale and Mawlamyinegyun townships. Since 2009, GRET has built the capacity of numerous village-based farmer organisations to transform themselves into profitable 'group enterprises'. A key thrust is to strengthen the groups as providers of diverse agricultural services at community level, such as financial services and leasing of agricultural equipment.

The objective of this project activity was to enable small- and medium-scale farmers to purchase agricultural equipment through a hire purchase scheme managed by their respective cluster-level community based organisations (CBOs).

Approaches and Processes

Prior to launching the project, a needs assessment survey was carried out in two township areas starting in 2012. As recommended by the survey report, an HP committee was set up using the guidelines described in the report. While many villages expressed interest in establishing HP financial services right from the beginning, the project started with one cluster-based HP in 2012, bringing together five to six

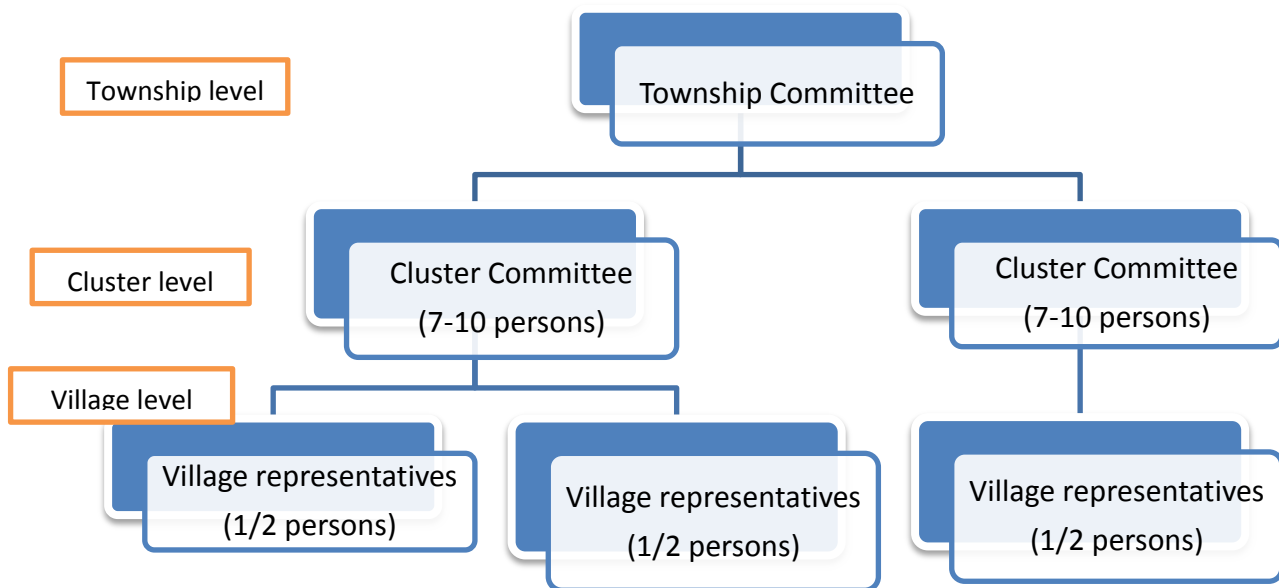
villages. Three schemes were added in 2013 and one more in 2014, bringing the total to five HP committees serving 26 villages in nine village tracts of Bogale and Mawlamyinegyun Townships.

Cluster committees elected by members are responsible for managing the HP services. Consisting of both male and female members, the committees are trained on various management and accounting skills and receive backstopping support from GRET on monitoring and technical matters. Although the project proposed some common committee rules, the rules are further adapted in accordance with the specificities of each cluster. The HP schemes provide two main types of services: farming equipment and income generation equipment. Main responsibilities of the HP committees are dealing directly with equipment suppliers, developing agreements with these suppliers and managing the entire loans process/scheme.

The main beneficiaries of HP schemes are smallholder farmers who wanted to purchase farming machinery. Seventy per cent of purchases are for common agricultural equipment such as threshers and tillers, while around 30 per cent is used for livelihood activities for landless farmers, such as sewing machines and boats. Through the cluster groups, HPs allow beneficiaries to gain quick access to expensive production equipment and at limited cost (low interest credit).

By paying a membership fee of 1000 MMK, any interested person can participate to the process of rules and regulation drafting and election of leaders

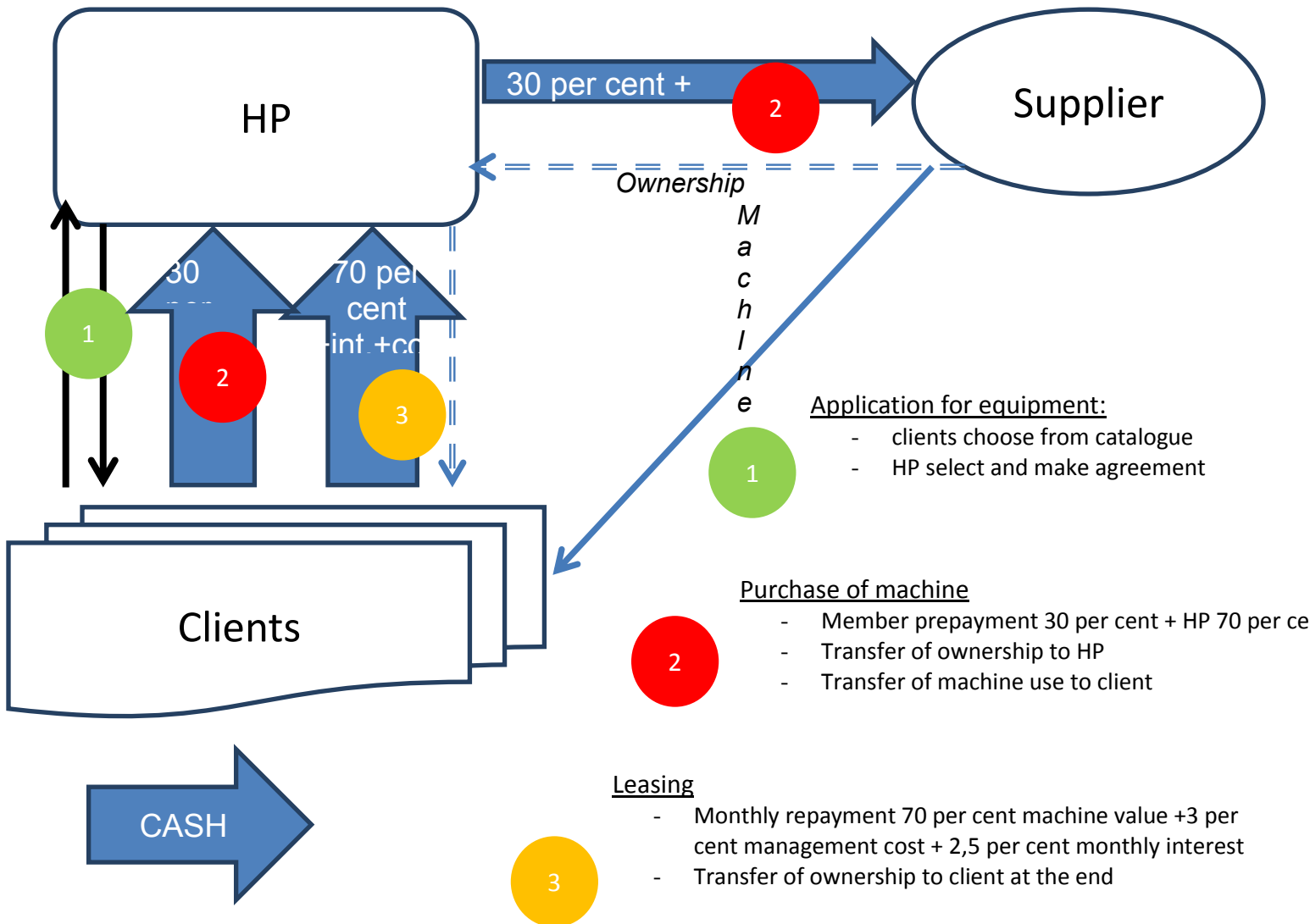
The following diagram shows how the cluster committees are formed.



The HP service is further adapted to farmers' needs and provides fast and easy communication on specifications and different prices. Farmers can choose their preferred brand out of three different types offered in the HP catalogue. The loan duration is based on the value of the purchase but cannot exceed 18 months. The usual loan duration is six to nine months for equipment valued at less than 300,000 MMK, 9-12 months for equipment costing between 300,000 and 700,000 MMK, and 12-18

months for equipment worth 700,000 to 1,400,000 MMK. The financial situation of the farmer is used to determine the number of repayment instalments.

The following diagram depicts a typical HP and the different interactions among the three main actors (HP committee, supplier of equipment, and client farmers and villagers).



The following table shows the different roles and responsibilities of actors involved in a HPC:

GRET	HPC	Hirer	Supplier
Deciding on the maximum price for equipment to be purchased	Signing the contract with GRET	Filling the application request form provided by HPC	Signing a contract with HPC
Deciding on the minimum and maximum number of renting months depending on the category of equipment	Opening a special bank account to deposit money received from GRET	Choosing preferred equipment from a pre-selected list	Updating the list of available equipment to be shown to potential hirers with correct prices
Deciding on the interest rate to be charged (2.5 per cent per month)	Establishing the list of equipment for the HP system with GRET	Signing the contract with the HPC	Respecting the agreed delivery time for equipment
Calibrating the running costs depending on equipment (around 3 per cent)	Selecting HP projects based on criteria given by GRET and respecting ratio for farmers/landless per category of equipment and maximum price of equipment	Paying a cash down payment upon delivery of equipment	Providing the HPC with the ownership attestation
Designing contracts and tools needed for HP implementation	Signing contracts with suppliers with support from GRET	Paying supplier's transport costs for delivering equipment	
Ensuring double signatures for bank accounts opened by HPC	Paying for equipment ordered and receiving ownership attestation from the suppliers	Repaying loan amount in agreed monthly instalments	
Establishing a list of criteria for selecting hirers and HP projects	Signing contracts with hirers with support from GRET	Repaying interest and running costs	
Participating in management meetings to select HP projects	Signing technical maintenance contracts with support from GRET	Paying HPC annual membership fees of 1000 MMK	
Validating quality of equipment catalogue with HPC	Attending the delivery of equipment from suppliers to hirers from time to time		
Facilitating the relationship between the HPC and suppliers	Marking equipment with the riveted plate prior to delivery		
Paying for "GRET HP" riveted plate	Collecting monthly instalments		
Attending all HPC meetings	Making follow-up field visits		
Make follow-up field visits with the HPC	Delivering ownership attestation to the hirer and removing the riveted plate once full loan has been repaid		

The interest rate was set at 2.5 per cent per month on **outstanding capital**, which is the maximum rate allowed by Myanmar's Microfinance Law. It is calculated on outstanding principal.

A typical HP service to a beneficiary who has purchased equipment valued at 100,000 MMK with a six month loan period and six repayment instalments is as follows:

Equipment cost	100,000 MMK
30 per cent down payment	30,000 MMK
Running cost (monthly payment)	3 per cent
Interest rate (monthly)	2.5 per cent
Loan duration	6 months

Interest Calculation

(MMK)

Date	Principal	Loan Portfolio	Interest	Running cost	Total monthly constant instalment
15/5/2014	11,667	70,000	1,750	500	13,188
15/6/2014	11,667	58,333	1,458	500	13,188
15/7/2014	11,667	46,667	1,167	500	13,188
15/8/2014	11,667	35,000	875	500	13,188
15/9/2014	11,667	23,333	583	500	13,188
15/5/2014	11,665	11,665	292	500	13,188
Total	70,000	0	6,125	3,000	79,128

The HP Scheme Steps

Application: The HPC process starts with the member's application. Village committee members organise information meetings where they invite farmers or landless community members to apply to purchase agriculture equipment or income generation equipment through the HPC hire purchase scheme. With the help of village committee members, the interested farmers and landless applicants fill the application forms and apply to the committee within a one month period.

Selection process: At the cluster level, two selection meetings are held during each season, depending on demand from beneficiaries. First, the committee members evaluate and rate the individual application forms. An applicant village cannot rate its own requests and instead all committee members at cluster level have to agree on the selection. Based on selection criteria and in view of physical analysis, the committee members select the successful applicants using the following criteria:

The following are the criteria for analysing and selecting applicants:

- must be permanently resident in the village
- can be a Malasaka (Management Advice for Family Farms) member or member of other group working with GRET
- must prove that the equipment will generate new income or reduce the expenditures proportionally to the investment
- must have previous experience or training in using the equipment applied for
- must not have a bad record regarding loan repayments
- must demonstrate financial capacity to meet the monthly repayments

Ordering equipment: During a follow up meeting, the HP cluster committee collects a 30 per cent down payment from the selected applicants (hirers), and issues a cash receipt voucher for each selected applicant. This is done one week ahead of ordering the equipment from the supplier. The HPC then drafts and sends the purchase order to the suppliers with the support of members.

HP contract: When the equipment is ready for collection, the equipment leasing procedure is activated. The contract signing takes place at township level machinery shop with the selected supplier. The hirers can have choice of brand from among the three in the catalogue. The contract between the HPC and the hirer contains the following points;

- The hirer will pay the equipment transportation cost from supplier place to village
- The hirer agrees that the ownership of equipment will remain with HPC for the duration of the contract
- The hirer will allow HPC to inspect the equipment at any time during the contract duration
- The hirer agrees that loss and damage to the equipment will not affect the continuation of the repayment
- In case of default payment of instalment or in case of contract is not respected, the HPC will take back the goods from the possession of the hirer without refunding him/ her any amount received
- The hirer will not sell, pledge or mortgage the equipment during the contract duration



HP repayments: After leasing the equipment to the hirer, the HPC has to collect regular monthly repayments comprising the principal as well as a 2.5 per cent interest and three per cent management cost, from the hirer. The village committee members collect the monthly instalments in their respective

village one day ahead. On the following day, the cluster committee fixes the specific day of every month for monthly repayment by the hirer and deposits the repayment in its bank account.

Monitoring and accountability: In order to ensure regular record keeping and reporting, the HPC accountant makes a record of any transaction, and cross checks with the cashier for cash balancing.

The record books and documents maintained in each cluster include a cash book, cash receipt voucher (village and cluster level), bank book, bank balance copy, contract between the HPC and the lessee, contract between the HPC and GRET, and contract between the HPC and the supplier and equipment receipt. The auditor checks the cash in and the cash out records, and then approves the cash transaction.

Participatory monitoring of the equipment condition and equipment use is done whenever the HPC members or GRET staffs pay a visit to a lessee's village. The equipment condition after use is also monitored when their seasonal activities are completed. Within the first 14 days after receiving the equipment, the HPC conducts the first monitoring trip to check the relevant use of the equipment by the lessee. This strengthens the leadership role of the HPC. Until the last repayment is settled, the HPC and GRET staff regularly monitors the proper and productive use of the equipment together with timely repayment by the hirer.

Managing non-repayment/delinquency: Sometimes there can be some irregularities or delinquency in the repayment to be managed by the committees. The term 'delinquent' describes someone who has a loan with an outstanding balance and at least one instalment in arrears. In case of delinquency from a member, HPC takes one day to inform the delinquent borrower's guarantees and gives them one week to cover the arrears. If there is an additional delinquency from guarantees, the hirer will ask the co-guarantors to support the repayment. In case of further default in payments or non-adherence to the terms of the contract the HPC will confiscate the equipment from the hirer without refunding him/ her any amount received.

Status of the HPC fund

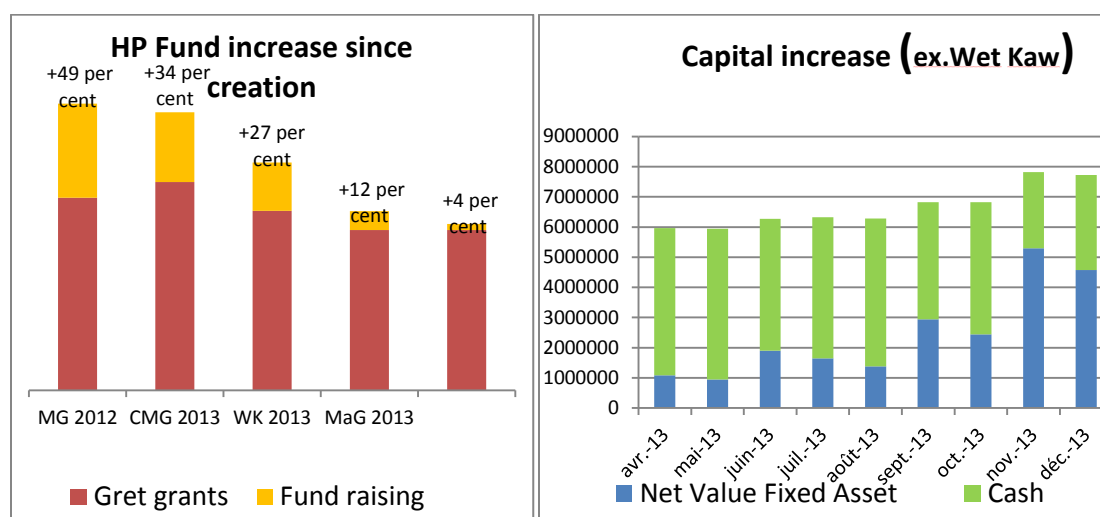
Within the two years, five HP clusters emerged with a constant increase in the number of participating villages and members to a total of 28 villages and 142 members. Several members are already in their second HP cycle. Moreover, the HPCs continue to receive new demands from villages that they are unable to satisfy due to insufficient funds.

The HP capital, which represents the sum of fixed assets value and cash, increased from the initial GRET donation of 20 million MMK to 61 million as of December 2013.

The economic model used in the accrual accounting is as follows:

- $\text{Income} = \text{Receivable} - \text{Depreciation (NOT Income)} = \text{cash in} - \text{cash out}$
- 30 per cent down payment are directly given to the supplier but they are considered as advanced payment for HP, so GRET considers 100 per cent of the machine value as "fixed assets" of HP

- Net value of fixed assets = machine gross value (purchase price) – monthly depreciation
- E.g. Cluster Wet Kaw's **Fund increase** (margin) = + 9 per cent after 9 months



By the end of June 2015, there are 7 active HP schemes covering 40 villages.

The table below shows cumulative data of the systems, during the entire project implementation:

Cluster name	No. Of loan provided	No of village	No of outstanding loan	Equipment Value	Total lease value (Int+ Prin)	Total Repayment (Int+ Prin)	Total Balance Amount (Int+ Prin)
Ma Gu	91	5	48	47,894,600	42,810,663	26,434,357	16,376,306
Chaug Ma Gyi	83	7	35	36,859,500	33,565,650	19,782,788	13,782,862
Wet Kaw	61	6	29	26,513,800	24,022,653	14,192,222	9,830,431
Machinery Gr	17	9	8	12,132,500	11,001,586	4,920,467	6,081,119
PadamyarKone	41	5	31	16,106,000	13,943,637	7,777,882	6,165,755
Nga Khu Chaug	31	4	30	11,459,600	10,166,728	4,152,034	6,014,694
Ma Gu-1	19	4	19	9,676,000	8,761,992	3,204,121	5,557,871
Total	343	40	200	160,642,000	144,272,909	80,463,871	63,809,038

The HP schemes have had some noteworthy impacts. The farming equipment purchased through HPC helped farmers to reduce their production losses through more timely utilisation of equipment for land preparation, harvesting, and other post-harvest activities. Moreover, by providing landless workers with equipment to support their income generation activities, the project has contributed to improved livelihoods through higher production rates. In general, the self-management, community decision making and operational capacities of villagers have been greatly developed and improved. The committee members have also developed strong negotiation and communication abilities and have enhanced their record keeping, accounting and administrative skills. Village leaders have improved their

social status by gaining the respect from other villagers. The cluster committee members have benefitted from working in a collaborative way and have implemented good practices such as annual changes to the management structure, including leadership rotation. Most importantly, they have learned how to apply transparency at various levels, particularly in all cash flow processes.

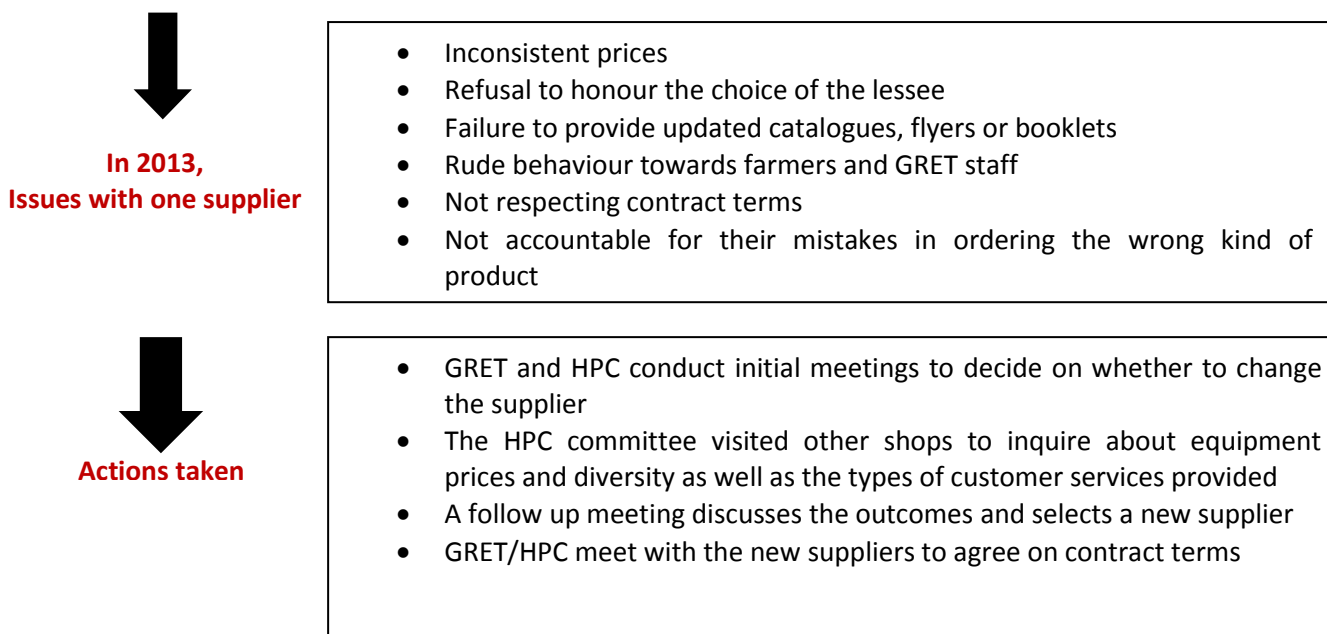
Lessons

1. *It is difficult to manage communication and business agreement dynamics between suppliers and clients*

HP committees entered into a contract with suppliers in order to:

- Get and share an updated view of equipment available through a catalogue with indicative prices
- Maintain a free choice of brand for members by preparing the comparative specifications of minimum of three brands for each equipment with their competitive prices
- Facilitate operational delivery to limit delivery delays by organising boat access and other logistic means
- Build a good business relationship through providing guarantee, fidelity, adaptability, technical advice

In spite of these measures, the HPCs faced a number of issues and problems. The following diagram highlights some of the lessons learned in 2013 and how the project and the committees tried to overcome them.





**Result and advice
for future**

The new contract helps to improve the relationship between HPC and the supplier and the scheme is able to provide a better service to its members

Lessons learned:

- Discussions should take place as soon as a supplier fails to respect their contract
- The HPC committee should regularly check the in-shop stock and catalogue offers
- Direct linkages with companies should be considered as a priority whenever possible

Future Challenges and Opportunities

1. Difficulties in cash down payment and repayment by clients

It is difficult for some poor farmers and casual labourers to meet the requirement for a 30 per cent cash down payment in order to be able to tap HP services, especially when the equipment price is higher than 100,000 MMK. Some farmers who face crop damage or crop failure due to unforeseen weather conditions and natural disasters such as floods and drought also face difficulties in meeting their repayment terms. It is therefore important to explore ways to couple the HPC to other forms of low interest micro-credit support and crop insurance services to safeguard their access to HPC services.

2. Limited business capacity of local suppliers

There are only a few local suppliers in Bogale with limited business a management capacity, which makes it difficult for HPCs to deal with them. Although suppliers in Yangon provide better services than the local suppliers, the long distance makes it impractical for running day-to-day HP services.

3. Newly evolving companies are competing with HPC

With the emergence of new companies in Bogale who can provide similar credit services and outreach to the villages, the locally managed HPC will have to compete with them in the long run. Questions remain on how the two types of services will compare in terms of satisfying the clients' needs in terms of effectiveness, efficiency and affordability of HP services.

4. Insufficient funding

Although the interest received during the loaning period is helping to grow the initial capital investment by GRET, this cannot meet the increasing demand of clients. If the HPCs can tap a big loan from a bank, the service can be more extensive with the higher growth rate.

5. Governance and capital ownership system is not fully established yet

The seven HPCs established so far still face challenges in ensuring their post-project sustainability. Although the governance structure can be reinforced by the umbrella protection of a financial organisation (linking HP and IC schemes), both the management and the business capacity of HPC committees still need to be strengthened. The governance and capital ownership system for sustainability can only be established in the extended phase of a new project. During the new phase, the capacity and skills of the committee members be strengthened in the area of leadership, operational and organisational management and networking. Regular exchange visits among the HP committees and regular annual workshops have to be conducted to ensure that the quality of services meet the clients' needs. During this phase, the HP repayment strategy must be compared in detail to the competitors' strategy to prove the advantages of the scheme communities. Auditing committee members should also be trained to practice participatory monitoring systems that are adapted to the local specificities.

Village Revolving Funds Allow Poor Villagers to Access Cheap Loans

Welthungerhilfe (WHH)

The majority of landless people in the Delta have incomes that are characterised as low, unreliable and overly dependent on the agriculture sector, resulting in food insecurity and rendering landless households particularly vulnerable to shocks and stresses. In general, the identification of opportunities for the landless is challenging. Entrepreneurial activity is often dependent on limited market options which can also take time to develop. Village Revolving Funds (VRFs) are a tool to improve the socio-economic situation of Myanmar communities at village level, especially where microfinance institutions are unable to reach the poorest. The key to long-term sustainability of the VRF is the sense of collective ownership developed by all villagers.

Background and Objectives

This activity is implemented by Welthungerhilfe (WHH) in the framework of their project “[Value Chain Development for Inclusive Economic Growth in Central Bogale/Mawlamyinegyuan Township](#)” that is jointly managed by the WHH/GRET Consortium. 55 VRFs were established among 56 villages (two small villages joined in one revolving fund scheme) and are running, among 60 villages supported by the project in Bogale Township. The remaining four villages did not continue with the proposed activity since they were not willing to arrange their own financial systems and were only interested in free inputs and service delivery.

The economic situation in rural communities is strongly constrained for most households. There are few sources of income, and where available, such incomes are low and unpredictable. This leaves most inhabitants facing regular income and cash gaps. To fill these gaps, they have to rely on informal loans with extremely high interests from local brokers and money lenders. Many land-poor and landless households survive at subsistence level with minimal assets and without investment capacity. While formal micro-credit service providers, both public and private, do exist, they are often exclusive (e.g. only for farmers or people with collateral), restricted (e.g. only for agro-input) or lack flexibility to the borrower constraints (e.g. with payback intervals every 15 days). Thus, many of the most vulnerable inhabitants do not have access to these loans, or have to access them at prohibitive costs.

WHH set up the VRF scheme with the objective of sustainably improving the livelihoods of poor villagers, both smallholders and land-poor or landless farmers, by enabling them to access cheap loans to engage in economic activities. The aim was to reinvest any interest generated into the village-owned fund, thus ensuring continuous growth and reaching more beneficiaries. One of the main characteristics of the VRF approach is that it is based on village self-governance capacities and local decision-making mechanisms. Due to the trust and familiarity between the lender and the borrower, it is possible to take into account of each specific situation. Any repayment issues that arise can therefore be dealt with sensitivity to the borrower with a view to avoiding deeper indebtedness.

By June 2015, the average amount of funds available to each VDC has reached to US\$3,500. This is derived from the payback of inputs in kind and interest, with an average US\$3,000 worth of active loans to 40 households per village. The size and repayment terms, including the interest rate, are collectively agreed and depend on the type of business as well as the overall socioeconomic profile of the village community. Loan size varies from 200 \$ to 350\$ and interest rate from 2 to 4 per cent per month, with repayment terms from 3 to 12 months, depending on the type of activities. The annual growth rate is reported to have continuously increased over the life of the project (2011 to 2015) with an average 25 per cent annual growth and arrears steadily decreasing. 37 per cent of the loans have been given to farmers and 63 per cent to landless households. Farmers use loans mostly for agricultural inputs and labour charges while landless use the loans mainly for animal husbandry, trading and small scale fishery equipment.

Since the VRFs have been set up, both smallholder farmers and landless households, especially women headed households, have been benefiting from the VRF schemes. The total beneficiaries reached 1,025 farm households and 1,881 landless households in 56 villages.

The VRFs are more flexible and socially sensitive than most private and public microfinance services. These strengths are also their weakness: while still organised through a set of clear rules and procedures, VRFs are often not profit-oriented and are not managed professionally as formal microfinance. They are more adapted to a social protection perspective than a business development perspective.

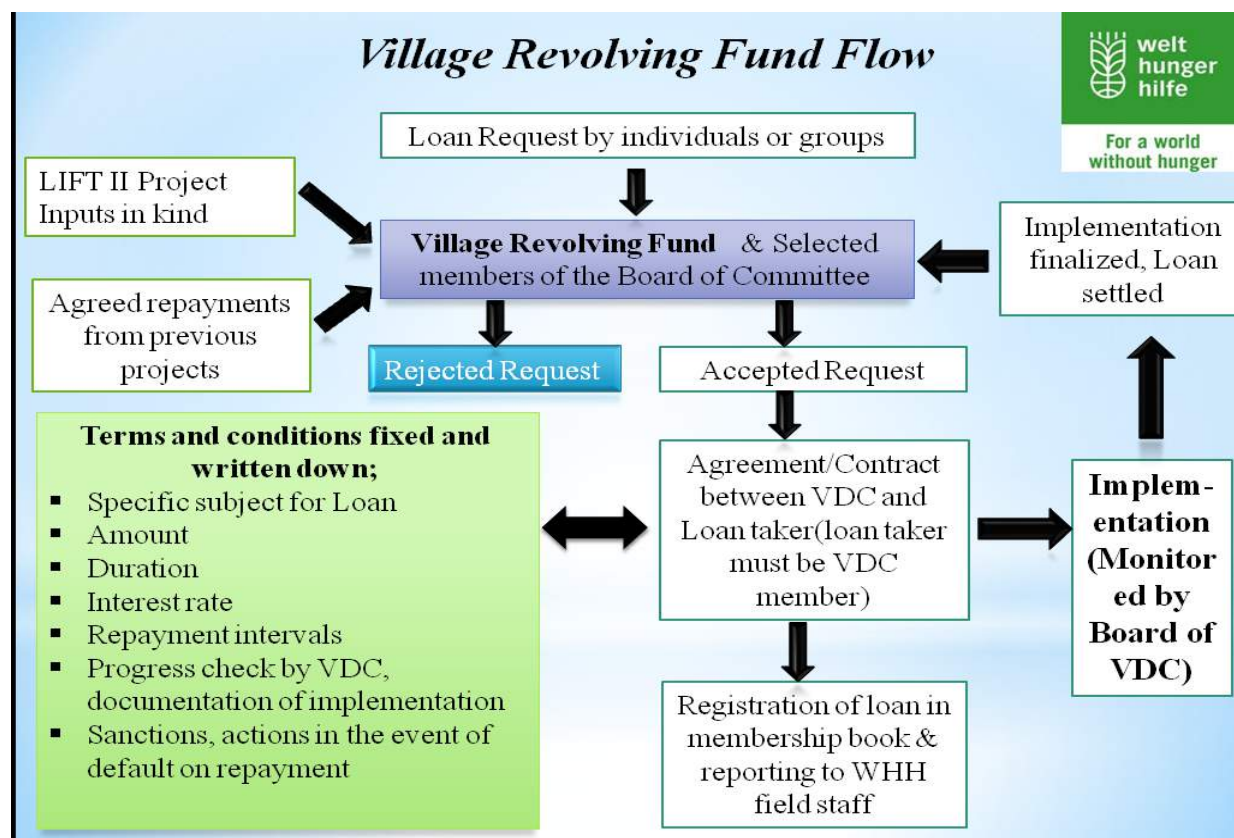
Approaches and Processes

Since 2008, WHH has supported farmers through various agricultural activities. WHH established an elected Village Development Committee (VDC) in each target village to ensure that the selection of the beneficiaries is conducted in a transparent manner, in accordance with collectively agreed criteria. The selected farmers received agricultural inputs in kind. Depending on the nature of the inputs, WHH asked these beneficiaries to reimburse their value to the VDC at a rate between 50 per cent and 100 per cent. These arrangements were defined in a contract between WHH, the VDC and the beneficiaries and were meant to not create dependency on project free inputs delivery as well as build a community managed fund. The VDC monitored and collected repayments, and managed the fund.

In 2010, these funds were turned into VRFs, once all the inputs repayments were completed. In consultation with the villagers the VDC decided the loan conditions according to the specific context in each village. For example, each community defined the proportion of the fund to be allocated to farmers and the landless/land-poor (for example a 60:40 ratio), as well as the interest rate to be charged and the loan duration.

The VDC was the key stakeholder from the very first step of beneficiary identification, through the rule and regulations setting stage, loan request evaluation, loan delivery and the final monitoring of reimbursements. Every village member (farmers and non-farmers) who pays annual fee can access the VRFs. The performance of VRFs was strongly linked to the capacity of the respective VDC and the quality

of the relationships between the VDC and the villagers. VDCs were (re-)elected annually by the community members and only VDC members considered no-active in the role by the communities are replaced. The project encourages VDC self-evaluation according to a stated set of criteria and sub indicators related to each set of VDC Management domains. The performances of VRFs are evaluated in terms of transparency, systematic use of record and cash books, set up of rules and regulation, annual increase of the fund, monitoring of activities supported by VRFs.



The VRF cycle

1. Terms and conditions for accessing loans are announced publicly and displayed on village announcement boards.
2. The villagers submit a loan request, individually or in groups, to the VDC.
3. The VDC evaluates, and approves or rejects the loan request, based on predefined criteria (e.g. proposal feasibility, borrower trustworthiness, allowed proportion of loans for farming and non farming activities, level of vulnerability balanced against the need of having a safe rate of repayment etc.).
4. A contract with the specific terms and conditions is signed between the VDC (lender) and the approved borrower.
5. The loan is delivered and registered in an individual membership booklet kept by the borrower.
6. Loans are accessible by all villagers who become members by paying a symbolic fee to the VDC annually. The number of members is not limited, but loans are disbursed in order of priority according to the set criteria.

7. The VDC keeps records including minutes of meetings, cash book and the cash balance.
8. The borrowers meet monthly with the VDC for monitoring. In these monthly meetings all cash transactions are made publicly and recorded transparently.
9. Monthly transactions, repayments, loan status and the monthly cash balance are displayed on the village announcement board. These public announcements increase social pressure on the borrowers to repay on time and ensure transparency.
10. The VDC monitors the repayments and the loan status until all loans are cleared, but can disburse new loans to new borrowers if enough fund available.
11. After all repayments are collected, the VDC proceeds to the next loan cycle.
12. In case of delayed reimbursement, as a first step, the VDC will display the issue on the village announcement board. As a second step, the VDC will assess the situation and negotiate with the borrower. Finally, as a last step if no agreement has been found, the VDC will proceed with legal action at village tract and/or township level such as sending official letter to village tract/township administrators. Usually the best way to solve delinquency cases is to encourage ownership and share responsibilities among all the members.
13. The VDC conducts an annual self-evaluation of its performance and VRF management.

The VRF loans have enabled both farmers and non-farmers to establish small-scale businesses. With WHH team guidance, VDCs have continuously improved their management, governance and leadership skills. The transparency of financial transactions is fundamental in building trust between members and the VDC and to avoid the potential misuse by VDC board members. However, this alone will not assure the sustainability of the funds and additional capacity development training as well as networking between different VDCs is considered necessary in the scale up of the systems. The VRF and the VDC organisations have helped to strengthen village unity and solidarity. The villagers not only get benefits from cheaper loans, but are also able to articulate their needs and discuss them at community level. One indicator of the communities' increased ownership of the VRF is their growing participation in negotiating and adapting the VRF rules and regulations.

Lessons

1. *For better ownership, it is recommended to deliver inputs through the VDC. Direct input provision to the beneficiaries by the project generated low repayment rates*

Initially, the project provided inputs directly to the farmers who then had to pay back their value to the VDC. This did not create enough pressure for them to repay their loans. Moreover, due to low ownership, the beneficiaries were not concerned about the growth of the VRF. As a result, repayments were delayed and some amounts were never recovered. This experience made the project change its approach to providing the inputs to the VDCs, which would then distribute them to selected beneficiaries. The stronger link between the VDCs and the farmers has contributed to a significant increase in repayment rates, with communities showing a higher sense of ownership of the VRFs.

2. *Loans that are not based on specific business proposals by the borrower are difficult to evaluate and monitor by the VDCs*

Initially, the project did not have a structured proposal format for loan applications. This made it difficult for the VDCs to evaluate the various proposals received and to justify their decision along defined criteria. Therefore, the project developed a standard loan application for VRF members. Since then, VDCs can easily evaluate the loan requests and monitor the business activities and reimbursements. The form also helps the borrowers to clarify their ideas about how they will invest the money and what results they are expecting. VRF loans are given only for business purposes and do not have at this stage a social protection function. However VDC could consider this option for future programming in order to add a specific pro poor focus.

3. VDC capacity and clear procedures to handle reimbursement delays is crucial for effective VRF management

It is inevitable that some borrowers are reluctant to, or face difficulties in paying back their loans. Sometimes they simply forget the due date. Therefore, the VDCs publish the loan amount and the difference between planned and actual reimbursements made by each borrower on the village announcement boards. This simple practice increases the transparency and the social control over borrowers. It is a strong incentive for the borrowers to observe the VRF rules. If the reimbursement is still delayed, VDC board members discuss and negotiate personally with the borrower. Their close social relationships with the villager and their knowledge of the family situation allow them to assess fairly the issue. They can apply solidarity principles that are difficult to use in a formal finance system. If the default is for reasons outside the control of the borrower (e.g. weather issue, pest) and if the borrower is at risk of falling deeper into debt, the VDC may consent to a loan rescheduling or a partial or total loan write-off. Of course this is always a difficult decision to make as it can weaken the fund performance and encourage other borrowers to default, especially in the first years, when the VRF total amount is limited and ownership weak.

Future Challenges and Opportunities

1. Trust and collective ownership between the villagers and the VDC board members are crucial for the long term viability of VRFs

The sustainability of the VRF depends largely on the management skills and the social recognition of the VDCs. They need to balance their authority for taking action against the borrowers who do not follow the rules with their understanding of specific situations. As a third party, the project plays an important role in facilitating and justifying decisions, in addition to its technical support. This role takes time to transfer to the VDC.

VDC strength is linked to their inclusiveness. In that sense, migration is a threat to sustainability, as young villagers are reluctant to take an active role in their villages. The membership of women in the VDC boards is increasing, albeit only slowly.

At present the VDCs do not have a legal status. It is not yet seen as a critical issue for their sustainability, but the team envisages their formal registration, possibly as a CBO, as one factor that may contribute to their organisational capacity, for example for opening joint a bank account.

2. VRFs represent an inherent contradiction: their aim is to improve the livelihoods of the poorest villagers, yet the most destitute people hardly access them

The established VRFs did not comprise social funds during the first years of project implementation. Therefore, the VDC together with the villagers carefully assesses the business proposals before providing any loan. The VRF financial viability is linked to the borrowers' capacity to reimburse the capital and the interest. This can be done only if the borrowers can generate some profits from their investments. This in turn requires some minimum resources and capacities from the borrowers that some of the most destitute families may lack. These families may have to be supported through other channels. But the VRF did not play an important social function in raising solidarity and in enabling vulnerable households to access loans at acceptable conditions that they will not otherwise be able to access. The close social relationships between the members are also an important factor to assess critical situation and to ensure that solidarity applies between the members. In 2015 however new development of VRF occurred and many VDCs considered using a defined part of their fund for social issues: in most of the cases the VRF is enough consistent to maintain such fund and to still keep growing from the interest earned by the business loans.

Formation of Agriculture Cooperative Associations

Association of Volunteers in International Service (AVSI)

The establishment of agricultural cooperative associations for poor farmers is a costly undertaking due to the need to incorporate a grant component to provide members with initial assets to carry out some basic services. The government requires every association to be registered under the Cooperative Society Law of Myanmar, which defines criteria such as the membership, and the duties and rights of each member and society. The law also outlines advantages for members such as legal protection of collective assets from individual mismanagement, ensuring fair sharing of benefits (dividends), the transfer of benefits to family members, how to carry out economic and social activities in accordance with existing laws, accessing bank loans, entering into contracts, and ensuring effective cooperation among societies in and outside the country. Farmers are, however, reluctant to register due to distrust on the system from previous experiences.

Background and Objectives

[This project](#) was implemented by the Association of Volunteers in International Service (AVSI) in the southern coastal part of Labutta Township. Farmers in the area have to rely on a single crop of rice produced during the monsoon season due to severe saline conditions in the dry season. The area was particularly affected by Cyclone Nargis in 2008, which significantly reduced the number of buffaloes, causing serious difficulties for farmers in preparing their land and undertaking post-harvest activities.

Prior to the start of the project, most farmers owning less than 10 acres per households were living under the absolute poverty line. Landless families not owning any significant agricultural land accounted for 45 to 65 per cent of the population. Virtually all landless farmers were found to be living under the poverty line.

While farmers are very interested and willing to improve their agriculture production and benefit from a collective approach, the concept of formal cooperatives has strong negative connotations due to the distrust caused by failed experiences in the past. Despite the newly enacted cooperative society law that encourages farmers to form cooperatives or other types of association, many farmers do not understand how they can establish a productive association and what type of support or services are available to them on the basis of this legislation. The objective of the project, therefore, was to assist farmers in the setting up of cooperatives in order to increase farmer incomes and market engagement.

Approaches and Processes

The first step before the start of the project was to undertake a needs assessment with the participation the communities and other stakeholders in order to develop a better idea of the production issues faced by farmers and how collective services that could be established in the area. The project started with an advocacy meeting addressing the concept as well as benefits of the cooperative approach for farmers. The meeting took place in one selected village and was attended by farmers representing the six villages in the project area.

As start-up activities, a group of six farmers - one from each of the six villages - was selected to take part in a field demonstration on the practice of hand transplantation of monsoon rice for seed multiplication purposes. The seeds and costs of transplantation were supplied for free by the project to help the farmers overcome their fear of failure. Once a month during the rainy season, the project agronomist conducted a one-day agriculture training near the field demonstration site for any interested farmers. As the harvesting time approached, the project provided a trawler jeep to the six core farmers as an asset for the future cooperative. Then in the dry season, two more interested farmers per village were selected to collaborate with the project on field demonstrations of black gram and green gram cultivation, bringing the starting group to 18 members in the first year. The positive results achieved in the first year helped to build trust between the project and beneficiaries in the six villages and served as a basis for launching the cooperative association in the second year.

At the beginning of the second year, the results of the first year of project activities were shared at a farmers' assembly in one village, and this occasion provided a new opportunity to raise awareness on the concept of, and benefits of forming a cooperative association. Application forms were then distributed to interested farmers, with an overview of the responsibilities of members. Out of the 40 applicants, a core group of 27 farmers was selected to join the initial 18 members and form a farmers' cooperative association, bringing the total membership to 45 farmers. Intensive one-week training on how to manage a cooperative business was then conducted with the facilitation of an external cooperative expert. The starting group of 45 members subsequently established a steering committee with four service groups.

In the second year, two farmer field schools (FFS) on monsoon rice production were conducted to strengthen the capacity of the farmers. Some buffaloes were provided by the project to the respective service group to enable them to start a buffalo hiring service. Likewise, six threshers were provided to the thresher group prior to the start of the harvesting season. During the dry season of the same year, the project embarked on the construction of a rice mill and three granaries to be managed by the cooperative. During the year, the project also provided training to cooperative members on how to manage a revolving fund and a group bank account.

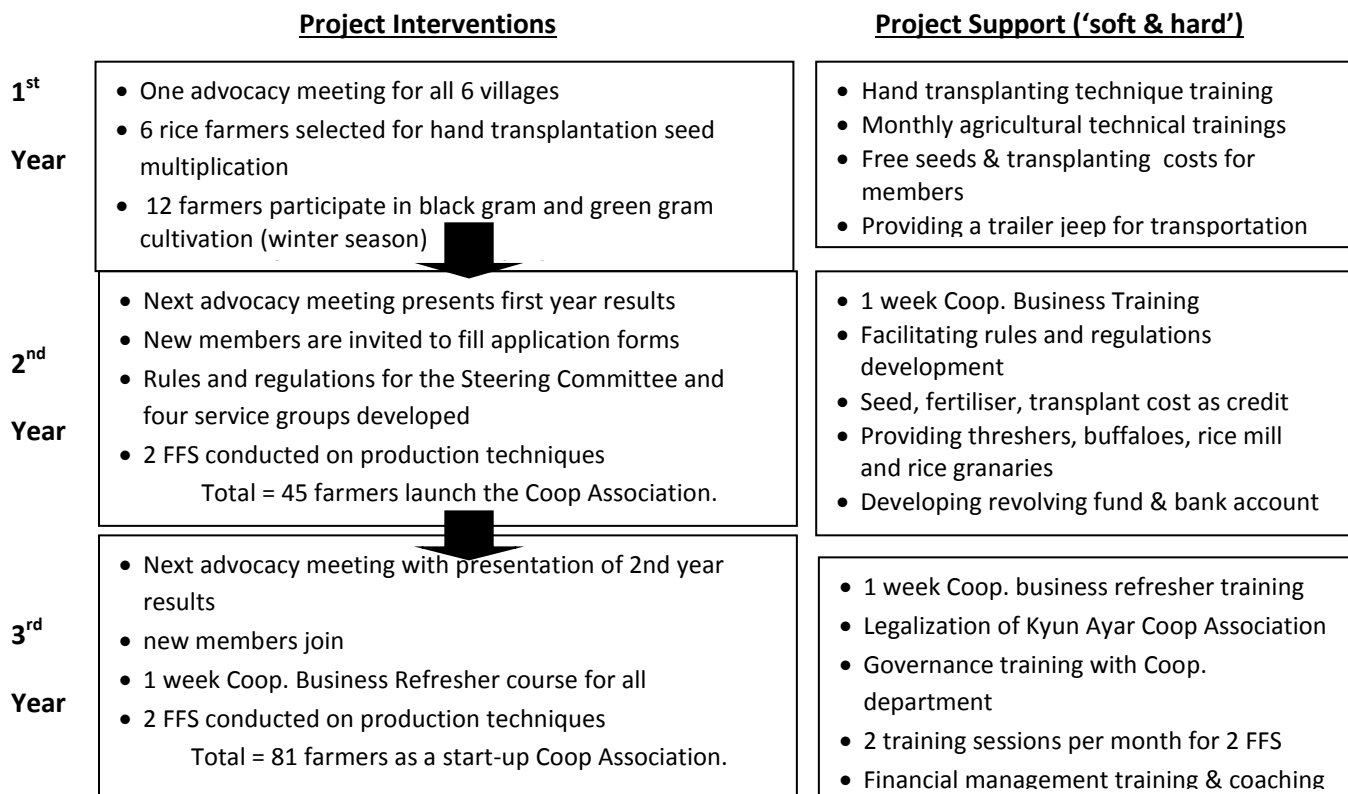
A similar approach was taken in the third year, enabling new members to join the cooperative and providing refresher training on cooperative business management for old as well as new members. The rice milling and rice granary service also started functioning. As the goals, objectives, organisation structure and roles and responsibilities of steering committee members and service group's members became clearly defined, the steering committee embarked on the process of legalizing the association by applying to the township cooperative department. Apart from the usual FFS sessions, the staff of the township cooperative department conducted more management and operational trainings in order to strengthen the governance of the cooperative association. Topics covered during the sessions included the cooperative book keeping system, internal and external auditing systems, tapping loans from the cooperative bank, and preventing misuse and mismanagement of cooperative resources.

The cooperative association was registered under the name 'Kyun Ayar' and has been successful in providing four types of local services. The cooperative currently comprises 81 members, with a revolving capital fund of three million MMK.

Methodological Approach:

By demonstrating that it was possible to achieve better yields through improved practices (such as hand transplanting) and the improved FFS extension approach, the project provided an effective entry point for establishing a farmers' cooperative association. In the second year, more improved technologies (including correct fertiliser application, integrated pest management and post-harvest management) were introduced through the farmer field schools. These capacity building activities were linked to financial and technical support to establish facilities and equipment for the four collective services - buffalo hiring, threshing, rice milling and rice storage and transportation – which were offered at reduced rates for members. At the same time, the written rules and procedures for management of the four services were gradually developed. In the third year, the process of legalising the cooperative association was carried out in close coordination with township cooperative department, who provided coaching on cooperative business management and accounting matters. All the repayment of the in-kind agriculture inputs by the project and income from the four services were pooled to develop a cooperative revolving fund that could be accessed by the participating farmers and other new members from the project villages. Part of the income was used for the operational costs of the cooperative.

Diagram showing the methodology of forming a farmer cooperative association in the six villages of Labutta



Lessons

1. Hand transplanting cannot be extended everywhere in the Delta due to physical and social constraints

The project introduced the hand transplanting technique to farmers for seed multiplication purposes. Farmers quickly recognised the significant yield increase in paddy cultivation after adopting this method compared to the very low yields previously obtained by seed broadcasting and fork transplanting practices. Despite such successes, the hand transplanting practice cannot be extended in the following years due to five unresolved issues: (1) insufficient skilled labour in the area (primarily women); (2) higher earnings from fork transplanting than hand transplanting (fork transplanting needs more bundles of seedlings and farmers pay them according to the number of bundles transplanted); (3) women reluctance to push their fingers into the sandy and hard soil surface; (4) labourers not accustomed to bending down as required for hand transplanting; (5) high risks of injury to fingers due to hidden spikes in the soil, especially in recently developed land.

These constraints highlight the need to explore the physical and social conditions underlying seed broadcasting practices in the area before introducing the new hand transplanting practice.

2. Rice mills cannot be run by a rice-husk gasification engine in the saline area

Villagers in Pyin Ah Lan Village Tract were finding difficult to mill their rice due to the two-hour boat ride to the nearest mill. The project therefore helped to establish a rice mill as one of the services offered by the cooperative. The mill was designed to be run by a rice-husk gasifier engine to capitalise on the availability of rice husks as a by-product of the mills that have little value for the community. The project expected that the use of a gasifier engine would also generate more income by reducing the diesel intake.

During the actual implementation of the programme, however, it emerged that the gasification process requires abundant supplies of fresh water to ensure optimal performance of the engine. With the use of saline water the operator had to open the engine head every three days to clean the carbon deposits in the combustion chamber. Due to the frequent stoppage and additional costs to the operator in opening and closing of the engine head, the farmers decided to run the engine on diesel alone. Moreover, running the gasifier engine required the support of a specialised mechanics and these were none available in the area.

This experience shows that the project should have tested the suitability of a gasifier engine in the local context before introducing it. The overall conclusion from this experience is that the use of rice-husk gasifier engines is not recommended in saline zones.

Future Challenges and Opportunities

1. Establishing a cooperative with poor farmers is very costly

As all the equipment, infrastructure, and financial support were provided on a grant basis, the cost of establishing the farmers' cooperative were extremely high, with the cost per farmer beneficiary amounting to around USD 470. The expectation is that these initial costs will be reduced in future with the registration of the association as a general cooperative, as membership regulations have been amended to enable interested landless villagers and fishermen joining the cooperative to take low interest loans from the association's revolving fund. This will reduce the project cost per beneficiary, while extending the benefits to a wider population and strengthening the governance of the cooperative association in the long run.

2. It remains difficult to overcome the reluctance of farmers to register as a cooperative association

The newly enacted cooperative law makes it obligatory to register associations of civilians. Moreover, through registering as a cooperative society, members can safeguard their individual and collective rights. A legally established society is able to access bank loans and other financial services for the benefit of members. Despite these advantages, there is a lingering mistrust that gives rise to the fear that the cooperative department may dissolve the association and seize the capital without warning, or charge additional costs for some of the services provided to members.

Annex: Some Questions Raised During Learning Alliance Workshop Presentations

Annex A

The Post-Harvest Learning Alliance

Gummert, M., Flor, R., Quilloy, R., Kyaw, M. A., Cabardo, C., Singleton, G.
International Rice Research Institute, Los Baños, Laguna, Philippines

1. Pioneer bags, locally produced are cheaper but not hermetic. What do you think of its effect on the duration of storage and risk of failure compared to IRRI hermetic super bags?

Hermetic bags control grain moisture and reduce insect damage. Pioneer bags control grain moisture only. With clean grains without insect infestation the Pioneer bags can work as well as the hermetic storage bags. However, they will not control insect pests if there is an insect problem. So the risk associated with using the Pioneer bags instead of Super bags is that insect infestation inside the bags can reduce the grain quality and the quality of seeds.

2. As presented, post-harvest loss in Myanmar can be as high as 50 per cent. Why so? What are the specific situations leading to such high losses?

There are chronic post-harvest losses that occur in every season and they are around 15-20 per cent in terms of physical loss. On top of that there is also quality loss, which is a loss in value. Depending on the price differentiation for different quality grades in the market (or discounts in price for poor quality) this can reach up to 30 per cent in value. The 50 per cent loss number is often given by people who do not understand the different loss types and just add the two numbers. Physical loss usually does not reach 50 per cent, however, the monetary loss can. A 20 per cent physical loss means 20 per cent loss in income and 30 per cent lower price for poor quality, together this generates close to 50 per cent in lost income.

In Myanmar there are also seasons with extended, heavy rain. In that case total loss of the grains for human consumption can be the result. When we did our rapid rural appraisals of farmers in project villages we were informed that this happens on average once every 3 years during the monsoon season. Assuming that farmers there grow two crops they would lose one in six crops completely. This is on top of the regular postharvest losses.

3. How reliable is the biting test of the grains for evaluating the condition of dryness (minimum 13 per cent of moisture content) by its cracking sound produced from the brittle grains? Do we encounter some cases where the grains get mould during hermetic storage despite the practice of this empirical test? How safe is this for poor farmers?

Farmers should not rely on the "biting test" when it comes to measuring actual moisture content (MC). In Lao PDR we asked 20 farmers in a meeting to tell us the moisture content of a rice sample using their traditional methods and the numbers ranged from 12 to 25 per cent for the same sample. We would

expect similar results in Myanmar. However, when it comes to determining whether grain needs to be dried or whether it is safe for traditional storage, farmers have a pretty good feeling when using these methods. However, there are risks. A 2 per cent difference can mean zero germination of seeds in hermetic storage after 4 months, so we strongly recommend measuring the grain MC before putting rice in hermetic storage. Mould is not so much of a problem, 16 per cent MC in hermetic storage does not cause much mould to develop, however this level of MC does reduce germination rates.

4. Why do you choose to test the flat-bed dryers and solar bubble dryers? What are the advantages of using them for small farmers? How do you suggest (in which way for economic and efficient use of expensive equipment) small farmers use them if they want to in the future?

Flatbed dryer: (i) Advantages: Controlled temperature and airflow rates leads to excellent grain quality under all condition. (ii) Disadvantages: Needs significant capital investment and is a fixed installation meaning it cannot be easily transferred somewhere else. Use of diesel for running the fan and rice husk for the furnace leads to relatively high operating cost. Target: Farmers groups / cooperatives, traders, millers, contract service providers.

Solar Bubble Dryer: (i) Advantages: Energy conservation, greenhouse gas exchange neutral in operation, does not require fuel, is mobile, multiple uses of the solar panels and battery.

(ii) Disadvantage: Less controlled temperature, drying time dependent on weather. Target: Individual farmers or farmer contractors.

The way forward to use the dryers: (i) Establish market channels for higher priced, high quality paddy. (ii) Group usage, (iii) Establishment of contract services, (iv) In the initial phase subsidies for dryer usage.

5. In Myanmar, farmers are not only losing their paddy in the post-harvest period. Many farmers cannot reap their ripened paddy field at the right time due to labour shortages and other issues that occur at harvest time. Can such losses (both quantity and quality) be considered more important to be tackled than post-harvest losses?

This remark is absolutely true. In other countries our activities on post production activities include mechanised harvesting. This should be part of any value chain project. When we started with LIFT it was not clear whether mechanised harvesting had potential, but it has developed very quickly. Mechanised harvesting (reaper and combines) can prevent these types of losses and should therefore be considered.

6. Even if small farmers can collectively organise to dry their seeds using flat-bed dryers, how can we get rid of (or minimize) the risk of disease contamination (maybe seed borne ones) when the dry seeds are re-divided and returned to the farmers? Do you encounter such issues in Philippines or other countries?

Store the rice seeds with correct moisture content, and storing it at a facility that does not favour contamination of growth of diseases. Also, proper warehouse management is necessary.

Annex B

Purchase Finance System and Inventory Credit

Welthungerhilfe (WHH) and Groupe de Recherches et d'Echanges Technologiques (GRET)

1. What are the risks involved in paddy storage?

Risks are, for example, high moisture, which in PFS case is reduced by quality tests before storing. Another common risk is damage due to rats, which can be reduced by improving the storage facilities. It is always a risk to store many goods in one warehouse, as in case of fire or other major damage, all stored goods are damaged/ lost. The advantages of decentralised storing (e.g. at village level) are outweighed by the advantages of centralised storing that has lower storing costs.

2. How can farmer organisations access financial services to develop their activities (storage of their own when renting rate is increasing)?

For the moment, there public financial services that would support the construction of farmers' organisations warehouses do not yet exist. This is one of the reasons that WHH/GRET stepped in and bridged the gap between the Myanmar social society and the government and public services. With the changing landscape and modifications of the laws of associations and cooperatives, it is well thinkable that farmers' organisations can have access to these kinds of loans for investments.

3. How to overcome the indebtedness and low prices at harvest time?

Both PFS and IC systems are created to overcome indebtedness and low prices at harvest time. In WHH villages, farmers additionally have access to Village Revolving Funds to provide them with low interest loans. This is part of WHH's integral approach of village development, but not part of PFS as such.

4. How do the PFS and IC determine the selling price? Do they consider the different price for different quality or different grade of rice?

For both PFS and IC, the current market prices depend on the rice variety. For the moment, traders are not yet willing to make a difference for quality, and the current market price after harvest is calculated from general information received via the Market Information System (MIS) from different whole sellers/market/rice millers. Anyhow, when selling the stock collectively, some traders have already agreed to pay a favourable price and to assume the transport costs (WHH/PFS experience). This is a very new development, and it cannot yet be discerned if the better prices are due to the increased quantity of bulk marketing, or indeed are also influenced by assured better quality.

5. Do you have limitation in the window period of your purchase/collection of paddy?

For PFS, this depends on the perspective. The sooner after harvest the paddy is purchased, the lower is the current market price. A low purchasing price means that more farmers can be included. It also means that the profit margin is higher, and PFS will be perceived as very profitable. For the PFS system as such, this is true, as PFS receives 40 per cent of the farmers' net profit, and if the profit margin is high,

PFS will grow quick. From the farmers' perspective, selling to PFS at a later stage signifies a higher cash down payment at that moment, and less profit that has to be shared with PFS in the end of the cycle. But, as highlighted before, the whole system was set up because farmers need cash right after harvest, and do not have appropriate storing facilities themselves. The farmers that can afford storing and speculating on prices themselves are usually not participants in PFS.

For both PFS and IC, the windows are defined by the VDCs/CAEDPs/IC Committees, together with the participants/members.

6. *If disaster strikes, what is your plan and resolution to loss by such damage in the storage?*

For PFS, please see in Challenges (1). The same security system applies for total loss or damage during storage.

For IC, small damage such as by rats is under responsibility of IC; for moisture is under the responsibility of members. For big damage such as from flood, specific agreement can be made according to the level of damage but as it is a credit system, loan should be repaid eventually with higher duration or lower interest.

Annex C

Credit for Delta Farmers PACT

1. How do you mitigate issues linked with over-borrowing? Do you prevent the farmer who takes loan from MADB or other microfinance player if you know it?

PGMF is encouraging borrowers to take care of loan burden upon their livelihoods. Some borrowers may take loans from multiple sources because regulator has limited the loan size up to 500,000 MMK.

2. Where are the major differences between the farmers preferred practice and your PGMF organisational practice that is challenging you with difficult to adapt?

PGMF methodology is being regularly reviewed along with the eventual changes by considering customer requirement, market and regulatory requirement factors. Moreover, our methodology has been initiated with PRA exercises with local people and it reflects with the local context.

3. You have 3 types of products under 2 categories: - Business loan under which the general loan product and the agriculture loan product; and Social loan (health reason). Can a beneficiary be burdened by taking all 3 types of product at the same time? How do you decide to let them borrow all 3 types of loan product?

PGMF is aiming to promote not only the income but also the overall progress of the poor families. Therefore, PGMF has created social loan products by taking care of socio economic factors of borrowers.

4. Why don't you create a vulnerable loan for the poorest which does not require group-based and the repayment is flexible?

PGMF does not want to feel poorest persons that they are been discriminated from group solidary lending methodology. As PGMF is regularly reviewing its methodology in order to reflect with the current situations, insignificant percentage of vulnerable loan sector is indicating that borrowers are preferring the group based lending. According to the updated products, certain extent of repayment schedule flexibility can be adjusted.

5. When you can provide the microfinance support to the landless farmer, how do you make sure that he uses the loan for the agriculture purpose not for other business?

PGMF's loan tracking system is helpful to both sides of service provider and customer.

6. If you do not manage to get back the repayment, do you take a legal action to the beneficiary? What is your status after registering with MMSE for such support?

PGMF's mission and vision is for alleviating long-term poverty by providing microfinance services to the poor and marginalised farmers so that their lives will be secured socioeconomically. Therefore, we are not harming to the community.

Annex D

Upgrading Village-Based Rice Mills: How to Make Benefits Trickle Down to Farmers Mercy Corps (MC) and Welthungerhilfe (WHH)

1. Are traders and wholesalers willing to pay better price for better quality grain?

Yes, both traders and wholesalers are willing to pay a better price for better quality grains. The difficulty lies rather in lacking control and guarantee systems for good quality grains. In the case of the farmers supported by the project, traders trust the quality, as e.g. part of the PFS system are continuous quality controls (moisture, uniformity of grains, etc.).

2. How to overcome the effect of indebtedness and low prices at harvest time?

As explained before, FPE/PFS/IC are effective systems to overcome the effect of indebtedness and low prices at harvest time. When linked to the local rice mills, additional mutual benefit could be achieved.

3. How to improve milling services to benefit by the poor and medium farmers in majority?

For one part, as mentioned above, with linking to FPE/PFS/IC or comparable services. Another option might be to support farmer umbrella organisations like VDCs or CAEDPs to construct and maintain their own rice mills. A comparable experience had been made by AVSI in Labutta. But this would also be a long-term strategy and could only be piloted within the present project phase. Another issue to consider would be related to question (9), as the present CBOs are still young and might be overloaded with the payback conditions that the project established with the business-oriented rice millers.

4. What are the other unexpected consequences or added value by the upgrading of mills?

According to the business plans, milling costs would be reduced with upgrading the rice mills, and millers planned to also reduce the milling fee, thus also sharing their benefits with farmers. In reality, as the demand for the milling service has not increased as much as expected, the output remains below calculations and millers cannot reduce the milling fees.

5. Are these upgraded mills considered in under use due to long idle time in a year?

There is a difference between mills in fresh water areas and salt water areas. In fresh water areas, idle time is less due to an additional cropping cycle in summer season. With links to FPE/PFS/IC systems, idle time could be reduced even more.

6. How do the millers find the economic and efficiency of their upgraded mills if the cost of upgrading were from their own expense?

In WHH system, upgrading is at the rice millers own expense, as they pay back the in-kind inputs to 100 per cent. Rice millers from salt water area find this difficult, while millers in fresh water areas are fine.

Livelihoods and Food Security Trust Fund

UNOPS Fund Management Office

12(O) Pyi Thu Lane, 7 Mile, Mayangone Township, Yangon, Myanmar.

Phone: +95 1 65 7280-87, Fax: +95 1 65 72 79 Email: lift@unops.org

lift-fund.org | facebook.com/liftfund | twitter.com/liftfund
