



Effective Seed Storage in Timor Leste (ESS)
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Second Quarterly Report
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Identified options for seed storage solutions in Timor Leste

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Executive Summary

In the second quarter of implementation the Effective Seed Storage (ESS) program has made progress toward identifying improved seed storage solutions for the target areas of Ainaro and Manufahi. First, an external consultant was brought on this quarter to conduct an assessment and make recommendations for improved storage solutions. The consultant provided recommendations on storage containers, drying practices, and some input about the local market for seed storage solutions. Recommendations were based upon his observations of the current local seed storage practices and existing market actors, and in consideration of international best practices. Then, the ESS program team took the consultant's recommendations and conducted extensive follow-up to explore the proposed options from the market perspective to gauge availability and feasibility. This included conversations with importers of materials and containers as well as local manufacturers and carpenters, and existing suppliers of storage options.

An additional aspect the consultant called out for improvement is to increase local knowledge of seed storage principles and best practices. The ESS team took this forward by developing a locally adapted training module and promotional brochure to be used in tandem with the introduction of new seed storage options. This was developed in consultation with the local agriculture extension works, community mobilizers and the Seeds of Life (SOL) program. Farmers are providing feedback on the training materials at present.

In the coming quarter the ESS program team will finalize the selection process among the recommended storage options with target farmers, and will continue to finalize the value-chain strategy for the selected storage options.

Program Overview

The majority of farmers in the target districts of Ainaro and Manufahi rely on subsistence agriculture for their livelihoods and are effectively caught in a poverty trap, with poor seed quality and poor storage fundamental to this problem. The continuous use of farm saved seed is leading to reduced yields, and the lack of appropriate on-farm storage results in a high percentage of post-harvest seed loss. These problems, combined with a lack of market access, result in falling incomes for farmers over time. At present, effective storage for seed is not available for the majority of farmers in rural Timor-Leste. Based on the results of an in-depth assessment Mercy Corps is conducting a seed storage program to introduce appropriate and effective post-harvest storage systems, primarily focusing on maize, the main staple crop. Through the Effective Seed Storage (ESS) program Mercy Corps is moving away from the distribution/handout model, and implementing a market-led approach to storage that has not been applied in Timor-Leste to-date.

The ESS program is designed to be sustainable by involving local manufacturers to increase access to improved storage systems, linked with capacity building of farmers and extension workers to connect farmers with viable input and output markets.

Performance Summary

Sector: Agriculture and Food Security	Objective Sector: Sustainable post-harvest protection of seeds and grain stocks improving crop production and livelihoods in rural Timor Leste				
Beneficiaries Targeted	27,503 IDPs: 0		Budget	\$247,501	
Beneficiaries Reached	0 IDPs: 0	0% 0%	Amount Spend	\$43,461	17.6%
Geographic Area (s)	Ainaro and Maufahi District - Timor Leste				
Sub- Sector: Seed Systems and Agriculture Inputs					
OFDA Indicator	Baseline	Target	Progress (Date)	Last Day of Report Period	
1. (Projected) increase in number of months of food self sufficiency due to distributed seed systems/ agricultural inputs for beneficiary families.	Number of months of food sufficiency is 8.1 months	At least 3 months	0	March 31, 2012	
2. Number people benefiting from seeds systems/agricultural inputs activities	0	1,560	0	March 31, 2012	
Mercy Corps Indicators					
2.1 # of improved storage designs	0	3	3	March 31, 2012	
2.2 # of local storage manufacturers trained	0	4	0	March 31, 2012	
2.3 # of trainings	0	52	0	March 31, 2012	
2.4 # of early adopters	0	1,560	0	March 31, 2012	
2.5 # of additional farmers with access to storage solutions	0	3,120	0	March 31, 2012	
2.6 % decrease in seed storage losses amongst pilot farmers	0%	50% reduction in seed loss	0	March 31, 2012	
2.7 # additional months maize is available in the household as a result of improved storage	0	3	0	March 31, 2012	
2.8 # of farmers purchasing storage for seed	0	3,120	0	March 31, 2012	
2.9 % increase in grain / seed sold by farmers as a result of new storage solutions	0	30%	0	March 31, 2012	

Sector Summary/Major Accomplishments

A consultative study on seeds storage was conducted and involved various relevant stakeholders, including government officials, NGOs, relevant projects as well as target farmers.

Mercy Corps conducted a consultative study on seed storage. An external international expert on seed storage from the University of Illinois, Bruce Litchfield, PhD., was in country in early February 2012 to assess existing seed storage practices, design options for farm storage models, and assess the seed market system.

Exploration of seed storage in the two target districts of Manufahi and Ainaro confirmed that there are opportunities to enhance storage, many at low cost and with significant enhancement of seed quality and preservation. Farmers visited in the target districts practice seed management based on long-standing traditions and methods passed from ancestors that have served them with some degree of success. However, farmers do not yet seem to fully understand the guiding principles of seed preservation nor do they have the resources and tools for enhanced postharvest seed drying and storage that will reduce



The consultative study on seeds storage; the international expert from Illinois University accompanied by the Program Manager checking the quality of seed sold by local merchant (*left*), and a consultative meeting with target farmers in one of target communities (*right*).

losses and maintain seed viability. It is expected that seed is dried too slowly and to a final moisture content that is not low enough for effective storage. Further, seed is not kept in an oxygen free, hermetic (airtight) environment that is known to suppress weevil activity. Likewise, seed is not stored in rat resistant and fire resistant containers, endangering the future supply of seed stock. Also, most seed is not selected; identity preserved, and stored separate from food grain, causing some farm families to eat their seed supply when food supplies are low.

It is recommended that (a) seed to be used for planting be selected and separated from the grain that will be used as food, (b) seed be dried quickly and to 12-13% moisture content, preferably in an enclosed environment, and (c) seed be stored in airtight, durable containers. Several alternatives for low cost and regionally appropriate storage exist, and they are discussed in the report. Once farmers understand key storage principles, they

may select their own solution(s), testing and adapting to best fit their approach to seed management.

Several key practices will help insure successful seed storage, including (a) naming and identifying seed stock as distinctly different and of higher value than food grain, (b) training a set of regional drying and storage experts to then train farmers and to preserve and extend the knowledge base, and (c) encouraging farmers to be entrepreneurial and to develop local solutions and businesses around seed storage and marketing.

Different approaches are possible in designing the seed storage solution – and nearly any – project, including: (a) selecting and prescribing solutions for farmer, (b) suggesting alternatives from which end users can select, and (c) sharing principles (and some appropriate best practices) from which end users can design and test solutions themselves. Furthermore the study presents various options for seeds storage that can be used by farmers. In general they can be categorized into two approaches: (i) Use a storage system combining a primary outer container and with secondary airtight inner container holding the seed; and (ii) Use a storage system with a single container that has all the desired attributes, such as glass jars, jugs, or bottles (e.g., used wine or food containers) with airtight lid, airtight metal or plastic drum.

Postharvest drying and handling practices are closely linked to seed storage. While perhaps not as easy and inexpensive to solve as storage, opportunities to enhance drying are considered one of the most important steps that farmers can take to enhance the security of both their seed and their food stores. Timor-Leste farmers work in a challenging environment for maize drying and storage, with tropical temperatures, frequent rain, and high humidity. The report of the study presents several alternatives to enhance farm-scale and community drying, and proposes that studies continue to develop an effective dryer system as a key component in seed storage management. A longer-term vision is also offered for enhancing farm life, using components of the proposed dryer during the non-drying season, and to market the systems to other locations. *The summary report of the study will be submitted to OFDA in early May 2012.*

Sustainable market-based solutions of recommended approaches have been identified

Local suppliers as well as manufacturers have been identified and consulted on the possibility to involve them in developing the recommended designs/options. From a local market perspective, two options were identified: (i) developing supply chain for exported materials to be combined with locally produced/available materials and manufacture it locally; and (ii) developing supply-chain for imported storage solutions.

Mercy Corps has been involved with two local tinsmiths in producing new designs of tin-based storage solution (silo) that is airtight. Three improved silo designs have been developed. In addition those two tinsmiths have committed to involve in the program development where Mercy Corps will help them to have access to materials (which is

currently lacking¹), providing technical support and promotional activities as well as providing direct subsidy for farmers to access the produced silos.



A local businesswoman was consulted to involve in the supply chain development of the silo materials (*left*) and a local shop selling products that potentially can be used for seed storage (*right*).

In addition, Mercy Corps has identified local suppliers interested in providing required materials for the tinsmiths. The project has also identified various different local suppliers who are selling various products (i.e. plastic drums, jerry cans) that can be potentially used by farmers as seed storage. Despite the fact that they are imported products there are supply chains up to district

level that are mostly in place. The project team has also started communications with them for improved access of farmers to these products. The final strategy for the development of value chains as well as provision of subsidy for farmers to access to both imported products and locally produce silos is still underway.

Training module and brochure have been developed involving consultation with 29 extension workers in the target districts

In partnership with the local artist group, Arte Moris, Mercy Corps has developed a locally appropriate module for training for farmers. The illustrated module and brochure will be used by the extension workers as well as the project officer to provide training for farmers.

A two-day consultation workshop with extension workers was conducted in Same, Manufahi district in 21-22 March 2012. A total number of 29 extension workers (2 female) plus 10 local NGO partners staff (no female) actively involved in the workshop. From the workshop evaluation documentation, it is understood that participants have valued the workshop as a way to improve the quality of the training material at the same time as refreshment for them on the post-harvest and storage knowledge and skills. The workshop outcome included action plans for the training for farmers in each village.



Sample of illustrated material for training for farmers

¹ The tinsmiths (silo manufacturers) are currently depending on the materials provided by FAO where they are imported from China, Australia and Indonesia. Mercy Corps will develop the supply chain for the materials (galvanized plate, acid, etc.) for the sustainable access for materials for the tinsmiths.

Cross Cutting Themes

N/A

Monitoring and Evaluation

No update for this reporting period.

Coordination and Meetings

On March 6 and 21, 2012 the Program Coordinator and Program Officer attended the second/advanced training on informal seed multiplication hosted by the Seed of Life (SOL) of Ministry of Agriculture and Fisheries (MAF). The training includes topics on seed drying and storage and its technology, yield prediction through simple random sampling methods and sustaining informal seeds multiplication.

The Dili based Program Coordinator is making frequent trips to the Districts to coordinate the realization of the project activities, support the local partners and hold meetings with stakeholders, including the extension coordinator in each district. In addition he conducted meetings at the national level with the Ministry of Agriculture and Fisheries (MAF) to coordinate program activities. On March 27, 2012 the Program Coordinator attended a coordination meeting with MAF, various NGOs and UN Agencies on the Global Food Security Cluster (FSC) for in Timor Leste. The FSC is an initiative to improve preparedness of the country of any humanitarian crisis that led to a food insecurity incident by developing a contingency plan for responses capturing commitments from various stakeholders. From the meeting Mercy Corps was appointed to complete the “Culturally Accepted Food” list in Timor Leste and “Rations Card” (IOM Models) that was then sent to the FAO and WFP as the cluster coordinating agencies.

Conclusion

The study confirms the relevance of ESS program to the country situation and its expected outcomes is predicted to contribute positively in improving livelihood of the target families while improving resilience against unexpected shocks. The study suggests three different approaches that are possible in designing the seed storage solution and presents various options for seeds storage that can be used by farmers where can be categorized into two approaches: (i) use a storage system combining a primary outer container and with secondary airtight inner container holding the seed; and (ii) use a storage system with a single container that has all the desired attributes. The study also recommended complementing current efforts with a support on drying facilities.

Following up the study recommendation, the program team has selected locally available materials that can be used as seed storage and was re-designed silo that will be re-consulted with the target farmers to come up with desired storage options to be supported through ESS program. Thus for the next reporting period the program team will focus on facilitating selection process by target farmers on the recommended storage facilities,

through workshops both in district and national levels. The program will also continue to finalize the value-chain strategy for the desired/selected storage options.

Success Story

No story to be presented for this reporting period.

Annexes:

A summary of the external consultant's report on effective seed storage options will be submitted to OFDA separately in coming days.