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“Home Grown” Keyhole Gardens for DRR Learning Initiative

Final Report



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CRS
CATHOLIC RELIEF SERVICES

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Executive Summary

Catholic Relief Services (CRS) Lesotho successfully completed an innovative Keyhole Garden Learning Initiative for Disaster Risk and Reduction (DRR) strategies that brought forty-seven participants from eighteen countries to Lesotho. Typically, when agencies and organizations have identified a promising practice for community development, this is shared through reports and training materials. Often times, this is where the practice will stay. Other countries and programs that could benefit do not hear of it and do not have the knowledge or skills to adapt it to their particular context. The Keyhole gardens for DRR Learning initiative was a revolutionary approach funded by OFDA to facilitate a practical learning on a cutting edge DRR intervention. In addition to a training component, this project integrated operational research and adaptation of this intervention by 18 countries around the World. Keyhole gardens supported by CRS and Consortium members in Lesotho was nominated an exceptional DRR intervention by OFDA since they are easy to build and maintain by communities, are low cost, replicable, retain moisture in dry climates, use grey water minimizing water consumption, provide year round nutrition to households and most importantly can be easily tended by chronically ill and physically challenged members. Because of the potential of this technology to produce high quantity of food using tiny parcels of land, this technology was deemed suitable for displaced populations too.

In order to globally disseminate this valuable concept, CRS Lesotho developed this learning initiative that would revolve around bringing cross-sectorial participants from Universities, government offices, research institutes, non-governmental organizations, and UN agencies from around the world to Lesotho. It was based on three phases: training, operational research and learning, and practical adaptation. Selected participants came together for a first workshop to be trained on the concepts and principles of the keyhole garden. Taking from this workshop, individuals went back to their home countries to build, study, and adapt the gardens to meet each of their contextual needs. Finally, participants were invited back to a final workshop where they shared their experiences and developed next steps for national and global dissemination of the keyhole garden technology. As part of the last phase, CRS/Lesotho also produced a Practitioner's manual and Instructional videos in four languages – English, Portuguese, French and Arabic. These learning materials can be found YouTube as well as CRS' Program Quality website.

This initiative was an effective way of tapping into different learning approaches from the various agencies. This included insight into high level country-wide impacts from government officials and UN agencies to research on best practices from academic institutions and the practicality of implementation from field staff and managers from non-governmental organizations and partners. In South Africa, the participants went so far as to build more than forty different types of keyhole gardens by testing different building material and cropping methodologies including seedlings versus seeds to see how many rotations of crops could be harvested in a year. Whereas, in Mozambique, the participants adapted garden structures for persons with disabilities to identify appropriate design modifications. Countries like Afghanistan, Pakistan and Sudan, with predominant Muslim and displaced populations looked at how these gardens could improve the lives of women as they could not leave the homestead. The overall range of creativity of practitioners in adapting the design to climate, availability of building material and local population needs exceeded all expectations of the program.

The enthusiasm for the keyhole garden and the learning initiative workshops was effusive. Participants were excited to attend, and even with limited funding, were able to successfully pilot and contextually adapt the keyhole garden. Through both workshops that were convened, this was an efficient way to cross fertilize learning between participants as well as document the process for global dissemination. It allowed CRS to distil these practices into a Keyhole Garden Manual and

better delineate the basics for a training video. Recognizing the demand for this type of information, the video has even been translated into three other languages in order for it to be distributed further.

Key Achievements

- A total of 47 participants from 18 different countries, representing a total of 32 organizations came to the first workshop. Most of them are either international or national development organizations (22), while the remaining were research organizations (3), Universities (4) and Government Ministries (3).
- Of the 18 countries participating in the initial learning initiative workshop, 16 actively piloted and adapted keyhole gardens in their contexts. In addition, one country that was unable to travel to the initial workshop used the circulated workshop materials to proceed with piloting keyhole gardens.
- A total of 38 participants from 15 different countries, representing a total of 16 organizations came to the wrap-up workshop.
- All participating Countries, except for South Sudan, Kenya and Mozambique have integrated keyhole gardens in their DRR or development initiatives and keyhole gardens are now firmly established within these countries.
- 1000 copies of a Keyhole Garden Manual was developed for dissemination to all of the countries and organizations that participated;
- A professional Keyhole Garden video was created and translated into three other languages, including French, Portuguese, and Arabic. It has been distributed internally to all country programs through the web. Additionally, it was featured on Huffington Post and has been discussed in a blog about countries in the Sahel. The videos can be accessed at:

KHG English Video

<http://www.youtube.com/watch?v=fWx9oWIhNfM>

KHG French translation Seq

<http://vimeo.com/52199212>

KHG Arabic Translation

<https://vimeo.com/51645195>

KHG Portuguese Translation

<https://vimeo.com/52199211>

Background on Learning Forum

A total of 44 participants attended the initial learning workshop, out of 51 targeted participants. The learning alliance members were identified from 18 different countries from 3 continents (Africa, Asia and Latin America). They represented 30 different organizations. The majority of the participant base represented either international or national development organizations (19), while the remaining were research organizations (5), Universities (3), Government Ministries (2) and a UN organization (1). Prior to the workshop, CRS Lesotho management successfully facilitated the

engagement of the US Ambassador in Lesotho and the Minister of Agriculture for an official opening ceremony to launch the “Home-Grown” Learning Initiative.

Throughout the duration of the 4-day interactive workshop, participants achieved the following proposed objectives:

1. Gained an understanding of the principles, benefits, success stories and challenges of designing and implementing keyhole garden programs;
2. Shared and learned from others on ways they might replicate the technical design of keyhole gardens in their respective countries with appropriate adaptations;
3. Developed an implementation plan for testing and adaptation in their countries to contribute to shared learning and to the final practitioner’s manual and training film.

To achieve the above objectives, the four-day agenda included the following topics:

Day 1: An overview of the benefits, principles and construction methodology of the keyhole garden methodology based on CRS Lesotho’s experience. Sessions also included examples of other types of gardens that have similar benefits to demonstrate ideas of other approaches, components of which may be included in a keyhole design.

Day 2: A field visit to Ha Malebanye, Mphahlele’s Hoek, to meet with communities that have been working with keyhole gardens for several years and to allow workshop participants to actually build four keyhole gardens.

Day 3: Debriefing from the field visit to discuss what we learned, what surprised us and to address questions participants had after this hands-on experience. Sessions also included deeper explanations of the principles of keyhole gardens and some of the scientific bases on which the methodology had been tested and proven. During Day 3, the group worked through a series of questions to brainstorm on how they might pilot the keyhole garden methodology in their contexts and jointly formulated the first draft of the research questions that will form the learning agenda for the pilot gardens.

Day 4: The group defined five Research questions that will be tested in their countries through the implementation of pilot gardens. All participants then developed organizational implementation plans that were submitted to CRS Lesotho for ongoing support throughout the adaptation phase.

A total of 30 keyhole garden adaptation plans were developed at the end of the workshop. The vast majority stated that the implementing organizations will work in close collaboration and in partnership with other development organizations, research institutions and with the local government organizations in the country. Several participants had the added advantage of being able to specify collaboration with other learning alliance members participating from their country. More importantly, 40% of the plans expressed the need to target resource-poor farmers and individuals, 37% intend to target HIV-positive and elderly people, 20% intend to work with health and community support groups, 17% with schools, 13% with Internally displaced people and the hosting communities, 13% targeting women groups, and 7% intend to target specifically disabled people. These plans will give the adaptation stage a significantly broad base of different target populations, settings, and conditions within which keyhole gardens can be tested and adapted.

Finally, the defined and agreed upon research topics for the adaptation stage were:

Partnership Strategies for Adaptation and Implementation	Examine which partnerships work well in adapting and implementing keyhole gardens: <ul style="list-style-type: none"> • Which partners are well-placed to access target populations and communities? • Which partners should be involved at macro level to facilitate information sharing / networking / sustainability?
Short Term Research Topics	Test different locally available materials as alternatives for the following keyhole garden design components: <ul style="list-style-type: none"> • Retaining walls • Bottom layer • Manure • Central basket (Type of basket) • Crop selection (Crop mix, crop patterns)
	Examine adoption and uptake of keyhole gardens by target population: <ul style="list-style-type: none"> • Which target groups have highest and lowest rates of adoption? • How does gender affect uptake? What strategies are successful in promoting greater gender equity? • How to effectively engage/motivate the target population(s)? <ul style="list-style-type: none"> ○ How to ensure community mobilization and engagement? ○ How community awareness contribute to adoption? • What social factors promote or impede keyhole garden uptake (by target population)?
Long Term Research Topics	Assess water requirements for optimal production in keyhole gardens: <ul style="list-style-type: none"> • Is household gray water sufficient for one keyhole garden to produce year-long vegetable crops in different contexts (seasons and climates)? • What other strategies exist to optimize water use efficiency?
	Impact of keyhole gardens on household food security: <ul style="list-style-type: none"> • What is the effect of keyhole gardens on home vegetable production, income generation & food security? • What are the potential negative effects of implementing keyhole gardens?

From June 11-15, 2012 thirty-eight participants from fifteen countries came together to share best practices and lessons learnt on the application and adaptation of CRS's keyhole garden technology. The June meeting was designed as a follow up review to the October 2011 workshop in which forty-eight participants from eighteen countries met in Lesotho to learn about keyhole gardens (KHG) and their application among vulnerable communities.

The overarching objectives of the June 2012 meeting were to promote learning, sharing and exchange among practitioners as well as identify the most appropriate adaptations of the KHG technology and document them in a practitioner's handbook.

To enhance the exchange process the five day meeting was broken into distinct theme areas.

These themes were:

- Materials innovations during the design and construction of KHG
- Planting and Production Adaption and Monitoring
- Partnership and Targeting strategies for Adaption and Implementation
- Adoption, Sustainability and Impact of Keyhole gardens
- Consolidating Key Learning and Keyhole Gardens

The design of the workshop included both presentations on the theme-based topics as well as extensive group work. Group work sessions were structured to elicit input on a series of guiding questions.

Throughout the five-day meeting participants were asked to identify innovations and best practices of note that should be included within the practitioner's handbook. Participants emphasized the importance of underpinning the work in KHG with the do no harm principle and ensuring that appropriate consideration was given to tapping the knowledge base of targeted farmers. They felt it was important to take a participatory approach to beneficiary selection and emphasized the need to include sustainability in the selection criteria for targets and partners.

The participants extensively discussed the need to conduct further research into the KHG technology particularly in relation to material inputs used in construction and design, as well as planting approaches and water usage. The group highlighted the importance of considering gender in the application of KHG technology and the importance of finding ways to utilize the technology as an empowerment tool for women.

Additionally the group identified the need for further guidance on:

- Finding alternative sources of manure
- Use and application of grey water
- Appropriate selection of plants to maximize nutrition
- Establishment of appropriate monitoring and evaluation frameworks

Challenges

Unfortunately, CRS could not identify participants from Tanzania and Pakistan, as originally proposed countries, due to a combination of not enough interest on the keyhole garden initiative itself, and the limitations with visa processing for national representatives from Pakistan. However, participants from four other interested countries (South Africa, Senegal, Sudan, and South Sudan) were identified. Appropriate approvals were sought from USAID/OFDA Washington for these changes.

General elections were held in Lesotho during the last week of May. The pre-election period created a degree of uncertainty with regard to the projected stability of the country after the elections. With initial plans to hold the wrap-up workshop in Maseru in June, CRS/Lesotho opted to request a change of venue for the workshop. After securing approval from OFDA, CRS/Lesotho planned for the workshop to be held in Johannesburg, South Africa (with logistical support from CRS/South Africa). Despite this change, the workshop planning proceeded smoothly and the majority of participating countries were able to attend.

Of the 18 countries represented in the initial workshop, 15 countries attended the wrap-up. Unfortunately, Afghanistan participants were not able to accommodate travel due to visa

restrictions. Kenya and South Sudan were not able to pilot the keyhole garden methodology during the adaptation period. Although Pakistan had not been able to attend the initial workshop due to visa processing, they were able to pilot keyhole gardening following CRS/Afghanistan guidance and using the CRS/Lesotho Homestead Gardening Manual and documented their approach. Implementation experience from Afghanistan, Pakistan, and the other organizations who did not participate were included in the project learning materials.



Given the need to have more time for the learning alliance members to mobilize further support from other stakeholders for pilot interventions and adapt keyhole gardens in their respective countries, CRS Lesotho obtained the no-cost extension approval from USAID/OFDA, setting September 28, 2012 as the revised project end date. Several participants reported delays in the allocation of funds from their current programs to implement the construction of the keyhole gardens. However, they were able to implement and provide feedback. Getting feedback from participants about their adaptations was sometimes a challenge and required a lot of initiative on the part of CRS Lesotho. In the end, everyone was able to provide information on who they targeted, how construction was adapted, and what successes and challenges each of the country programs.

The logistics for organizing a multi-country, multi-agency workshop in a small Country with limited logistics expertise and support structure also meant a significant amount of involvement of CRS senior leadership in the arrangement and facilitation of the workshop. The evaluation by participants however proved to be very complimentary – many of the participants stated that this was the best workshop they had attended in their career!

Summary of Results

	Objective Statement	Indicator with Target	Result	Achievement
Goal	The goal of the project is to make the keyhole-gardening methodology more widely available to vulnerable smallholder farmers worldwide.			
Strategic Objective	The keyhole-gardening methodology is made available in appropriate form to the wider humanitarian community	Number of learning materials produced and disseminated; 50 proceedings, 500 manuals, 500 films; 2 films uploaded to Internet	1000 Manuals, 1000 DVDs, 1 Film in 4 languages	
Intermediate Result 1.1	Keyhole gardening is tested and adapted to a variety of local contexts	17 countries represented by participants	18	
		5 country-specific recommendations per country is produced	15 countries	
		51 participants in initial and final workshops, disaggregated by country of origin and type of institution (e.g. NGO vs. university or research institution); 51	See Chart Below	

Country	Number	Institutions	Adaptations	Pictures
Afghanistan	1	CRS	Retaining walls	Stone , Brick Adobe, & Block cement
			Bottom layer	Cardboard, Straw, Weeds, Cane (bulrush)
			Organic Matter	Animal Manure, Urine, Compost
			Central Basket	Pebbles, Compost, Mung Bean Straw
			Control of pH	Ash, Compost, Humus, Animal Manure
			Crop Selection	Crop Mix
			Size	Much larger for higher yields
				
Burundi	2	CRS, NGO	Retaining walls	Eucalyptus Wood
			<p>In Burundi, eucalyptus wood is an abundant and fast-growing wood often used to build homes and furniture. Because of its availability, ease of transport and low or no cost, keyhole gardeners are opting to use the wood for the walls of the garden.</p> <p>To construct the walls, farmers gather about four to five trees, strip them of branches and cut them to the 1 meter height of the garden. Several pieces are staked into the ground as posts to mark the garden's perimeter. Additional pieces are lashed together with rope and then used to build the walls. To further strengthen the walls, an outer layer of eucalyptus branches is woven and roped together with the wood wall.</p> <p>Eucalyptus, naturally resistant to rotting from moisture as well as pests such as termites, is expected to last two or three years as a garden wall while requiring some periodic maintenance to ensure the walls' integrity. It is also important to note that practitioners in Burundi work with government extension officers to ensure the wood's use does not pose a negative impact on the environment.</p>	
				

Ethiopia	3	CRS, NGO, Research	<table><tr><td>Retaining walls</td><td>Stone , Mud Brick</td></tr><tr><td>Bottom layer</td><td>Wooden Sticks, Poles</td></tr><tr><td>Organic Matter</td><td>Manure</td></tr><tr><td>Central Basket</td><td>Crop Residue</td></tr><tr><td>Control of pH</td><td>Ash</td></tr></table>	Retaining walls	Stone , Mud Brick	Bottom layer	Wooden Sticks, Poles	Organic Matter	Manure	Central Basket	Crop Residue	Control of pH	Ash	<p>During the dry seasons in Ethiopia, grey water generated by a household is not enough to keep crops adequately irrigated. With an eye toward water-use efficiency, keyhole garden practitioners developed an innovative drip-irrigation system using discarded plastic water bottles.</p> <p>Plastic water bottles are punctured with toothpick-size holes, one on each side of the lower end of the bottles. The toothpicks are kept in place as fresh water is poured into the bottles and capped. Then the toothpicks can be removed. The bottles are placed upright between two plants, lining up the punctured sides so that they face the roots of each plant. When the keyhole garden requires additional watering, the bottle caps are loosened to allow water to drip directly to the ground near the plants. The rate of water flow is controlled by tightening or loosening the bottle cap.</p> 
			Retaining walls	Stone , Mud Brick										
			Bottom layer	Wooden Sticks, Poles										
Organic Matter	Manure													
Central Basket	Crop Residue													
Control of pH	Ash													
<table><tr><td>Retaining walls</td><td>Cement Blocks or Stone</td></tr><tr><td>Bottom layer</td><td>Aloe, Banana Trunk, Tins, Bones</td></tr><tr><td>Organic Matter</td><td>Compost, Donkey Manure</td></tr><tr><td>Central Basket</td><td>Sticks</td></tr><tr><td>Control of pH</td><td>Ash</td></tr><tr><td>Crop Selection</td><td>Carrots, Turnings, Onions, Beet (Crop Mix)</td></tr></table>	Retaining walls	Cement Blocks or Stone	Bottom layer	Aloe, Banana Trunk, Tins, Bones	Organic Matter	Compost, Donkey Manure	Central Basket	Sticks	Control of pH	Ash	Crop Selection	Carrots, Turnings, Onions, Beet (Crop Mix)		
Retaining walls	Cement Blocks or Stone													
Bottom layer	Aloe, Banana Trunk, Tins, Bones													
Organic Matter	Compost, Donkey Manure													
Central Basket	Sticks													
Control of pH	Ash													
Crop Selection	Carrots, Turnings, Onions, Beet (Crop Mix)													
<p>IDP camps</p>														
Kenya	3	NGO	Unable to pilot and adapt the keyhole garden											
Lesotho	7	CRS, Gov't, University, NGO	Lesotho participants did not make any modification in design											

			Retaining walls	Hampe Sisal, Sandstone, Granite Stone
			Bottom layer	Sisal Leaves, Tablecloth Leaves, Paper Leaves
			Organic Matter	Compost, Garbage, Farmyard Manure, Bones
			Central Basket	Sisal/Compost, Shell, Sandstone
			Control of pH	Ash
			Crop Selection	Carrots, Petsai, Cabbage, Chive, Courgette
			Madagascar	3
				
Malawi	3	CRS, NGO University	No data available, since participant could not travel because of visa issues.	
				

Mozambique

3

NGO,
University

Retaining walls	Cement Blocks containing layers of sand & “manure” to hold water and keep the moisture inside
Bottom layer	Plastic Bags
Organic Matter	Manure, Leaves
Central Basket	Around a Fruit Tree
Control of pH	None due to high volumes of water
Crop Selection	Pumpkin, Sweet Potato, Pea Beans, Lettuce, Cabbage
Location	Around a fruit tree to improve fruit production and have some resistance to high rainfall

Sixteen years of civil war in Mozambique has left an estimated 30,000 people with disabilities. With few safety nets and even fewer social services, people with disabilities are particularly vulnerable to food insecurity and social stigma.

The Technical University of Mozambique and International Relief and Development (IRD) believed that keyhole gardens would give people with disabilities the kind of hope and independence that has so far eluded many. Adapting the garden to suit the needs of those with physical limitations, IRD and the University built gardens with cinder block walls that rise only 0.5 meters high. At that height, a person can work the garden from ground level while using the walls for support. The University also mobilized volunteer students to help build the gardens and spread the technology to other schools, teachers and other students.

"In Mozambique, we have projects and organizations working in rural development, projects that help people improve the quality of their lives," says Dr. Armando Cuco, IRD Agriculture and Food Security Coordinator. "But few organizations work with the disabled, so [the keyhole garden] is a big opportunity for us to do something useful for them."



Pakistan*

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Retaining walls	Bricks, Mud Bricks
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Rwanda

2



CRS, NGO,
Gov't



Retaining walls	Stones, Clump, Turf
Bottom layer	Aloe, Tins
Organic Matter	Manure
Central Basket	Bag with dry matter inside
Control of pH	Ash
Crop Selection	Amaranth, Carrot, Swiss chard, Cabbage, Onion



Farmers are using a type of grass turf, quick-growing and abundant throughout the country, to build the walls. The turf is traditionally used to terrace hills to prevent erosion. Farmers in Rwanda thought that this grass turf would be equally effective as walls for the keyhole garden. The turf is cut into blocks and then piled atop one another, grass side down. Because of Rwanda's strict environmental laws, farmers and government agricultural extension officers work together to gather the turf and ensure its use poses no negative environmental impact. Because it is plentiful and common, the turf is often collected for free.


As the garden is watered or as it is exposed to rain, the turf compacts and binds together even more tightly, creating a sturdy garden wall. The turf is expected to last at least two years before it will need to be replaced or otherwise maintained.



Senegal	1	University	<p>Provided an economic analysis of the keyhole garden outputs and found that a family can do 3 crop rotations in a year and profit/save \$53.07 per year. Senegal plans to carry out operational research over the next three years and hopes to partner with Cape Town University in furthering this research, mainly around soil sciences in key hole garden technology</p>	
South Africa	1	Parastatal	<p>Working on Fire, an organization that recruits and trains young men and women from marginalized communities to fight wildfires, adopted keyhole gardens into its 28-day training curriculum as a course on organic agriculture. They completed a comprehensive research study on the keyhole garden and what worked best in a number of areas including:</p> <ul style="list-style-type: none"> • Companion planting • Altering crops • Crop rotation • Repellent planting • Compost making • Earth worms • Organic pest / disease control practices • Seeds versus seedling production • Water harvesting and use <p>In order to filter the grey water more efficiently and to have cleaner water, the found that the central basket could be made up of two baskets, an inner and outer basket. At the base of both of the baskets is placed small stones at bottom, medium stones in the middle, and larger stones on top with fine sand on outer circle of the basket. In the central basket are placed stones of all the same size.</p>	
South Sudan	1	CRS	Unable to attend the final wrap-up workshop	

Sudan	3	CRS, Gov't	While the original design of keyhole gardens was implemented, as is, the participants from Government of Sudan are now visiting communities and women's groups in Darfur, teaching them how to build keyhole gardens. Keyhole gardens are spreading along the landscape of Darfur, especially in camps		
Swaziland	2	NGO	Retaining walls	Stones, Concrete Blocks, and Wood	

Uganda	3	CRS, NGO, Hospital	<div>Central Basket</div> <div>Iron Sheet</div>	
Zambia	1	NGO	<p>While retaining the original design and methodology of keyhole gardens, Zambia has replaced the outer wall building material of stones, with readily available bricks. Again this technology has been readily accepted by communities and is being replicated in Zambia.</p>	

Zimbabwe	4	CRS, NGO, Research	<p>The uptake of keyhole gardens has been high in Zimbabwe. In Matabeleland, where rocks are readily available, building material similar to Lesotho has been used in construction of keyhole gardens. Zimbabwe, however, very innovatively included keyhole gardens as part of their farmer field approach and lead farmers and Government officials have now adopted this technology and are training other farmers and junior farmer field members.</p>	
TOTAL	47			
* Afghanistan and Pakistan were unable to send participants to the workshops, but innovatively took the learning materials, adapted them, and used them in country.				

Human Interest Stories

Zimbabwe

I was born on the 5th of December 1930 and I grew up at Sikhathini Village in Bulilima District (Plumtree) of Zimbabwe. I moved to Mangwe district in 1984 during the political disturbances which affected Matabeleland after independence. I was actively involved in the liberation struggle and due to this reason I was presumed to be part of the disturbances. I endured lot of difficulties and I suffered a stroke due to injuries sustained during that period. All of my livestock and assets were left in Bulilima and I managed to recover only two goats in 1987. Life after this became difficult as we struggled to make ends meet. Poverty and hunger became part of our daily lives year in and year out. Things became worse when my husband passed away. Fending for the family became difficult and I had to bear a life of begging for the rest of my life. I failed to educate my children and now they are failing to support me. I am under medication that requires that I eat well. Most times I fail to adhere to the treatment due to shortage of food.



I used to eat isitshwala (thick porridge prepared from mealie-meal) with salt as relish. I was struggling to make ends meet. Sometimes I would sleep on an empty stomach which affected me as I was taking medication. The turnaround of my life started when ORAP selected me as one of the pioneering beneficiaries of the homestead gardens. The gardens were a new innovation built using stones. I had never seen such gardens before and most people started to belittle the concept saying ORAP was building a heroes acre

(graves) at our homes. When the gardens were completed I was quite hesitant to plant since I could not understand how someone can water vegetables with dirty water. However after some encouragement from ORAP field officers I planted spinach in the keyhole gardens. It was not difficult to water the gardens as they hold moisture for a long time. I also used dirty water and the vegetables grew well. I have since started harvesting my spinach and everyone in the community is amazed about the quality of vegetables growing from being watered using dirty soapy water. Vegetables from the three gardens are too much for the two of us and I sell the excess to neighbours.

The Homestead garden has brought immense positive changes in my life. I now take my medication adhering to instructions. There is now **diversity in our relish** as a variety of vegetables is readily available. **Quality of our lives has improved** as we can now afford to eat bread and drink tea. We have regained our **community status** as our neighbours now look at us with dignity. Moreover I have **handled money** after such a long turmoil. The spinach from the three keyhole gardens has been doing well and I now get about 30 rands (\$5) a week from its sells. I use this money to buy other food commodities other than vegetables. Truly speaking these few cents have totally **improved the quality of my life**. I can now afford to buy a 10kg of mealie-meal and sugar. I still cannot believe this. I have at last managed to fend for myself. Even my health has drastically improved as I now eat nutritious food and take medication after having a decent meal. I have gained respect from other

members of the community as I am also able to provide something that they do not have. It is amazing how things work together to produce a good result. I have noticed that even my contributions at various meetings are now respected as opposed to when I had nothing to my name. I now have regular visitors and friends because I don't nag them by begging for food. Better things are yet to come as the vegetables in the trench gardens are also doing well.

Swaziland

Mrs. Makhosazane Mamba lives in Qomintaba chiefdom in Matsanjeni Tinkhundla, Shiselweni region of Swaziland. She is a widow living with 4 children. She used to struggle for food and she was unable to feed her family well. She is practicing conservation agriculture and she is no longer struggling for maize. To supplement her family diet, she has a keyhole garden. She can now access vegetables at her door step as the garden is located in the household yard. Mrs Mamba used to have a trench garden. It was unsuccessful because chickens used to destroy everything. "I adopted this garden because it is safe from the chickens", were exact words from Mrs Mamba *plants spinach, lettuce, onion and beetroots.*



Mrs Mamba highlighted that she has no source of Income in his household and life has been so difficult. I struggled to buy candles for night lighting, soap for washing my body and clothes as well as other small things", highlighted the elderly. She highlighted that she makes money mainly by selling the spinach as neighbours like it a lot. "I wish to construct a lot of these gardens but age is against my wishes and I will maintain this one.

When asked why she adopted this garden, she stated that Qomintaba is a very dry area and thus this garden helps him in saving water. I use any water available including bathing water. Every morning when school kids go to school, I water my garden using the used water. Every after washing dish's I don't spill the water but use it in the garden.

Pakistan

Village Doday Jo Wandiyi is 20 kilometres away from the main Nagar town in Tharparker. Like others, it is small village consisting of 25 households. 48 years old Shanty lives here with her husband and five children, 2 girls and 3 boys. It is too costly and time consuming for Shanty family and villagers to bring daily food items from town especially fresh vegetables, but they have no choice.

Shanti used to plant vegetables near her house but with less success and water was the biggest issue for her traditional kitchen garden. Her traditional garden was not producing enough. Then her family received assistance from PVDP and she made her new Keyhole garden near her house and planted vegetables.

Shanti said first I was thinking that it is a strange structure and may not be successful because it is above the ground and it may work or not. Then one morning I saw vegetable seeds sprouting in my KHG. I was very happy to see it. After some days when the vegetables were ready for use I realized that this garden has consumed less water and vegetable growth is very good. I have planted Reddish, Onion, garlic, spinach, mustered, green chilies, tomato and coriander.



Vegetables growth is so good that I rarely need to buy vegetables from the town and my households food needs are met to a good extent. Whenever guest come to my house, I can readily take vegetable from KHG and do not worry about sending someone to bring it from market. I am happy, my family is happy. Now my family and my villagers *“hope for vegetables in village”* in the desert of Tharparker is proved true with this new technique. Neighbors and villagers had visited my house to look at my KHG. They are enquiring about it. I am telling them how to build it and what benefit it will give. *“It feels like we (Shanty and my husband) are guides for the villagers now”*. Few of the households have already started building their own KHG.

Shanty is very much thankful to CRS local partner PVDP for their support provided.

Recorded by Vasram Gulbo Social Mobilizer PVDP, translated by Fahad Khan PM CRS

Malawi



The family of Mr Mlenga found it difficult to feed his family and to find relish, but with the coming in of the keyhole the problem has been alleviated. *“I am a proud man now and feels secured and do not go for longer distance fetching for relish but collect around my compound,”* said a smiling Mlenga.

Mr Mlenga who comes from Wiliro Impact area has two women and keeps orphans from his younger brother. He constructed two keyhole gardens for the benefit of

his children and the entire family. *“I do not regret being the first man to construct and adopt the keyhole garden,”* he said. I also sell for money and exchange relish with a 50kg bag of manure that I supplement to the keyhole garden.

Madagascar

With the introduction of the Keyhole garden in the Androy region, CRS Madagascar with the diocesan partnership (ODDER) adopted this strategy to pilot a garden through a community leader, Josoah.

Convinced of the techniques potentiality advanced by trainer, he decided to install a keyhole garden in his course in February 2012. Using local materials available such as sisal hamp, the ashes of cooking and the cooking waste composts, his family was able to build a keyhole garden with double basketball in a surface of 7m². His household has chosen to adopt a production that meet the needs of the family, which are very expensive to the market and has already tried with the other techniques but was failed. With that, he opted to planting petsai, carrot, chives and tomatoes.



Josoah's wife, very happy said : *"with the wastewater from my kitchen and some amount of water taken from wells, we had a best quality crops of carrots, tomatoes, chive and petsai and even in dry season , throughout the year, it's never seen in our Region !!*

We have reduced our expenses in half for vegetables. If before our household spends about 0.5 USD per day for vegetables, we have now spent more than 0.25 USD. The difference, more precisely the amount of \$ 0.25 per day was divided into two, the first to complement food and other needs and second for savings. With this money savings to, we plan to invest on production plans fruit trees that we sell in the village because there are a lot of demand. This will help us to save even more money.

Josoah adds: *"moreover, the reputation of the availability and quality of our production is recognize in our municipality. Some mothers come to my wife almost every day for asking technical suggestions on building keyhole garden. The other members of our group did the same. As a leader farmer, I ensure the role of key person to strengthen the ability of households interested in the development of keyhole garden. Currently, three keyhole garden is set up with my technical support. The keyhole garden is popular in our village, all households want to practice because practice helps us to have a food available even in a dry season. We see the difference* "

South Africa
Adaptations:



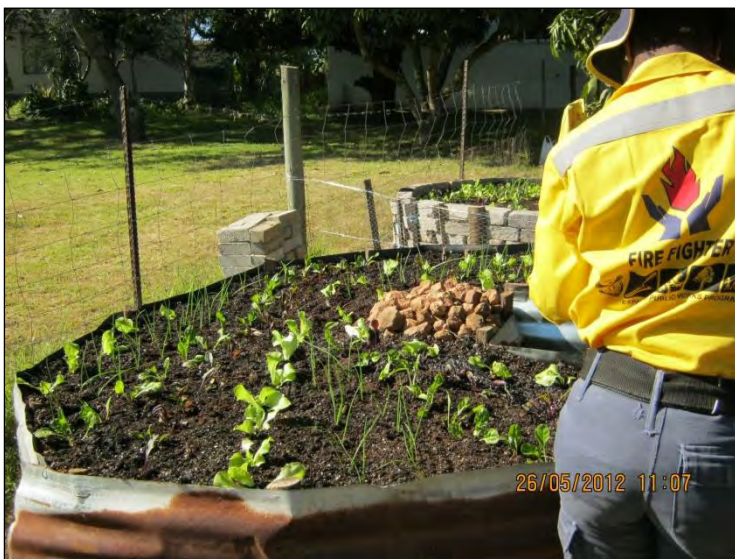
Various retainer wall options for keyhole garden



Pest control using crop varieties including marigolds on the borders



Layering of central basket, including an inner and outer core, for better filtration



Use of seedlings for more crop rotations in a year