



Klay Sareth, smallholder farmer, Ou'Tong village, Oddar Meanchey province, Cambodia. PHOTO: Savann Oeurn / ActionAid Cambodia

Climate Resilient Sustainable Agriculture EXPERIENCES

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Executive summary

The case studies presented in this compendium don't offer magic solutions – they validate lived experiences of rural farming communities. We interrogate them using ActionAid's Human Rights Based Approach (HRBA), which emphasises working intensively with rights holders - both in identifying the problems and looking for solutions.

ActionAid's pioneering Climate Resilient Sustainable Agriculture (CRSA) approach organically incorporates this human rights based approach with agroecology. The case study from **Bangladesh** demonstrates quite effectively how the community identified water ponds as a key block to their farming and food security and looked for solutions - both in terms of rejuvenating the ponds, but also in setting up pipes for irrigation. The community has also acquired farming skills to deal with pests in an environmentally friendly manner and make their farming climate-resilient.

The case study from **Brazil** demonstrates quite clearly how empowering women through agroecology also encapsulated a strong feminist perspective to address violence against women, and supported women with knowledge on planning, production and marketing. In addition to their use in farming, the integration of rainwater harvesting structures/cisterns significantly reduced women's workloads.

In **Cambodia** there was a strong emphasis on setting up groups, including a water users groups and women's market group. Here too, the use of organic locally-produced fertiliser and pesticide reduced women's workloads and the time they spent travelling to buy chemicals.

In **China**, through diversified livelihoods - and keeping free range chickens in a sustainable non-intensive manner - villagers have been able to increase their income. They have benefited through forming a cooperative for this endeavour that was able to draw additional resources from government departments.

In **Mozambique**, by stopping burning crop residue and using more sustainable farming methods - including conservation farming - soil fertility and productivity has improved. This practice has spread to over 40 farmers through demonstration plots and use of a trusted local facilitator who was a member of the community – Margarida.

The **Myanmar** case study demonstrates the immense potential of decentralised planning, especially the recording of village priorities in a 'Village Book' as a basis for any negotiations with government authorities for investment in



Sack garden for vegetable production, Rwanda
PHOTO: Celso Marcatto / ActionAid

agriculture and community development. They also invested in research to identify alternatives such as natural fertilisers, good quality and resilient seeds, etc.

The **Nepal** case study highlights the importance of setting up and registering groups to access external assistance, especially from governments. Women in Nepal also benefitted from training in and use of natural manure through setting up compost pits, reducing their costs for chemicals and improving their soil structure and fertility and human health.

In **Nicaragua**, the emphasis was on producing and promoting native seed varieties through women's cooperatives. This example demonstrates the vital role of women leaders like Gladys in motivating others, in improving her own conditions and that of others like her.

In **Pakistan**, ActionAid and partners innovated through leasing land for collective farming for women. The women piloted sustainable farming practices and attempted to cushion themselves from external price rises by reducing the use of chemicals, and setting up their own local seedbanks to ensure the availability of reliable local seeds.

In **Rwanda** - in addition to setting up women's cooperatives and training on sustainable farm practices - quite fundamentally women are also gaining awareness around the recognition, reduction and redistribution of their unpaid care work, which often holds them back from engaging in more productive activities or in leisure activities.

In each of the case studies, the importance of strong local organisation was evident; this was supplemented by a combination of local and external knowledge on farming practices, climate change adaptation, marketing, planning, etc. It is not that the farming communities don't need any external assistance, but they need assistance that is appropriate for their situation and the problems they are dealing with. Most case studies also demonstrated the use of local sustainable alternatives: such as cisterns; magic pipes; fencing and improved poultry housing; collective farming; setting up local seedbanks; the promotion of native seeds; setting up compost pits; use of 'Village Books' to record community priorities; and so on. A key principle applied was testing out the practice in a small plot or area before expanding it.

Agroecology helps to build resilience, conserve water, biodiversity, and has the potential to empower women and ensure food security. ActionAid's Climate Resilient Sustainable Agriculture approach encapsulates agroecology and promotes it within a human rights based framework.

On the basis of our experience we recommend that there is greater investment in agroecology, as part of a comprehensive human rights based approach:

- In particular in ensuring public agriculture research works with nature, taking cognisance of the natural ecological functioning;
- That public agriculture scientists are encouraged to work with farmers to define their research priorities, disaggregating the priorities of male and female farmers;
- That extension agents are trained on sustainable agronomic practices and farm management, which can have significant benefits in terms of building resilience, adapting to climate change, and improving production and food security;
- Of course, all this needs to be underpinned by support for smallholder farmers' organisations, including women farmers' unions, to both engage effectively with markets and with government to influence public policy in their favour.

Ruchi Tripathi, Senior Programme Manager, Resilient Livelihoods, ActionAid International

Introducing CRSA

Climate Resilient Sustainable Agriculture (CRSA) is an initiative ActionAid and partners have been developing, based on the science and practices of agroecology and the recognition of people's right to food. It represents an effort to incorporate in our work the new challenges posed by climate change and its impacts on poor people's lives. It is based on the identification of the major risks and challenges local communities now face, and are likely to face in the future, and on the design and implementation of site-specific adaptation strategies aimed at reducing vulnerabilities and increasing the resilience of smallholder production systems.

Defining agroecology

Agroecology is both a science and a set of practices. It is the application of ecological concepts and principles to the design and management of sustainable agricultural ecosystems, and its practices are based on enhancing the habitat - both above ground and in the soil. Agroecological farming builds the health and resilience of ecosystem functions, while reducing the reliance on external inputs such as synthetic chemical pesticides, fertilisers and fossil fuels that have high energy, environmental and health costs.¹ In fact, the findings from the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) show that agroecology is well-suited to withstanding the environmental and economic stresses posed by climate change, shifting pest pressures, and volatility in petroleum and commodity prices.²

¹ De Schutter, O. 2011. 'Agroecology and the Right to Food', Report presented at the 16th Session of the United Nations Human Rights Council [A/HRC/16/49]

² Pesticide Action Network North America (PANNA). 2009. 'Agroecology and Sustainable Development: findings from the UN-led International Assessment of Agricultural Knowledge, Science and Technology for Development'. San Francisco: PANNA. Available at: www.panna.org/sites/default/files/AgroecoBriefFINALsmall.pdf



Sack garden for the production of vegetables, Uganda

PHOTO: Celso Marcatto / ActionAid

Agroecology: global experiences

ActionAid International and partners promote CRSA, which brings together agroecology and ActionAid's HRBA. CRSA promotes control over resources and sustainable production to ensure food security and sustainable livelihoods in the midst of climate challenges. This document presents ten success stories of practising CRSA by smallholders working with ActionAid and its partner organisations.

Agroecology has been practised successfully on millions of acres by farmers in Asia, Africa and Latin America. The following section, as summarised in ActionAid and IFSN's '[Fed Up](#)' report, highlights that agroecology ensures increases in crop yield, improves food and nutrition security, reduces poverty, builds resilience, and empowers farmers, among other benefits.

Agroecological practices have been proven to increase crop yields. A survey of 286 projects in 57 countries, covering 37 million hectares on 12.6 million farms, has shown yields increased by an average of 79%. Yields increased by 116% in projects in all of Africa, and by 128% in East Africa. A 2011 survey of 40 ecological projects in 20 African countries on 12.8 million hectares found yields increased by a factor of 2.13, and over a period of 3 - 10 years, resulted in an increase in aggregate food production of 5.79 million tonnes a year - equivalent to 557 kilograms per farming household.

Agroecology improves food and nutrition security. 12,500 farm households in drought-prone Cheha in Ethiopia benefited from ecological agriculture on 5,000 hectares of land by introducing new varieties of vegetables and fruit and forest trees, organic manure for soil fertility, natural pest controls and affordable veterinary services. This resulted in a 60% increase in crop yields and a 70% improvement of overall nutrition levels. Other surveys show that more diverse sources of food led to increased nutritional security for children and all members of the farm household.

Agroecology also reduces rural poverty. For every 10% increase in farm yields, it's estimated there is a 7% reduction in poverty in Africa and more than a 5% poverty-reduction effect for Asia. Low cost 'push-pull' pest management systems have more than doubled maize yields - from below 1 to 3.5 tonnes/hectare, and 30,000 smallholders have adopted them in Kenya, Uganda and Tanzania through town hall meetings and farmer field schools. Some 1.3 million Malawian smallholders have adopted agro-forestry by using local nitrogen-fixing trees and shrubs and increased maize yields from 1 tonne per hectare to 2-3 tonnes. And young men have gained employment rehabilitating degraded land through building tassas and zai planting pits in the West African Sahel.

Agroecology helps to build farmers' resilience. Co-construction and participatory research to improve local 'orphan' crops adapted for local conditions and climates are proving highly effective and adaptive to local growing conditions.



The use of palm as animal fodder in the semi-arid region of Brazil
PHOTO: Celso Marcatto / ActionAid

Some 14,500 smallholders are benefiting from higher yields (up from 4.4 to 10 tonnes/hectare) and improved micro-nutrients in 19 new locally-adapted varieties of orange sweet potato in Uganda, that can suit various local soil types and rainfall conditions. A pesticide-free and participatory-bred variety of tef (known as Quncho) has spread from 150 hectares to 50,000 hectares in four years through smallholder farmers' cooperatives and extension networks.

Agroecological methods increase climate resilience. A farmer-led organic composting, water harvesting and crop diversification approach in the arid and overgrazed Tigray region in Ethiopia has significantly increased yields for smallholders. Additionally, it increased climate resilience and brought multiple additional benefits to 18-20,000 smallholder farmers and 100,000 poor beneficiaries - particularly female-headed households. Benefits include an improved hydrological cycle with raised water tables and permanent springs; improved soil fertility; rehabilitated degraded lands; increased incomes; increased biodiversity; and increased mitigation and adaptation to climate change. Zai pits, water harvesting, and agroforestry in Burkina Faso and Niger has re-greened 3 million hectares of land, restored soils, raised water tables and increased food production and climate resilience during dry spells.

Agroecology also mitigates climate change by acting as a carbon sink and by reducing dependence on fossil fuels and other energy requirements, especially by reducing the use of nitrogen fertilisers. Ecological and organic agriculture reduces carbon dioxide emissions by between 48-60% and reduces energy requirements by 25-50% compared to conventional farming.

Active participation of smallscale farmers and producers is vital for the success of knowledge-intensive agroecology practices. Agroecology has been developed by grassroots peasants' groups and farmers' movements, and farmers' organisations, networks and cooperatives have demonstrated how they can rapidly 'scale up' successful agroecology initiatives - from Brazil to Kenya and Cambodia - especially through forging links and developing trust with research institutions and extension bodies.



Rain water catchment for small irrigation, Rwanda

PHOTO: Celso Marcatto / ActionAid

ActionAid's CRSA framework

Every farmer - from conventional farmers that are heavily dependent on external inputs, to traditional smallholder farmers that rely mostly on internal inputs and on natural fertility of the soil - can begin a process of transition to more sustainable production systems.

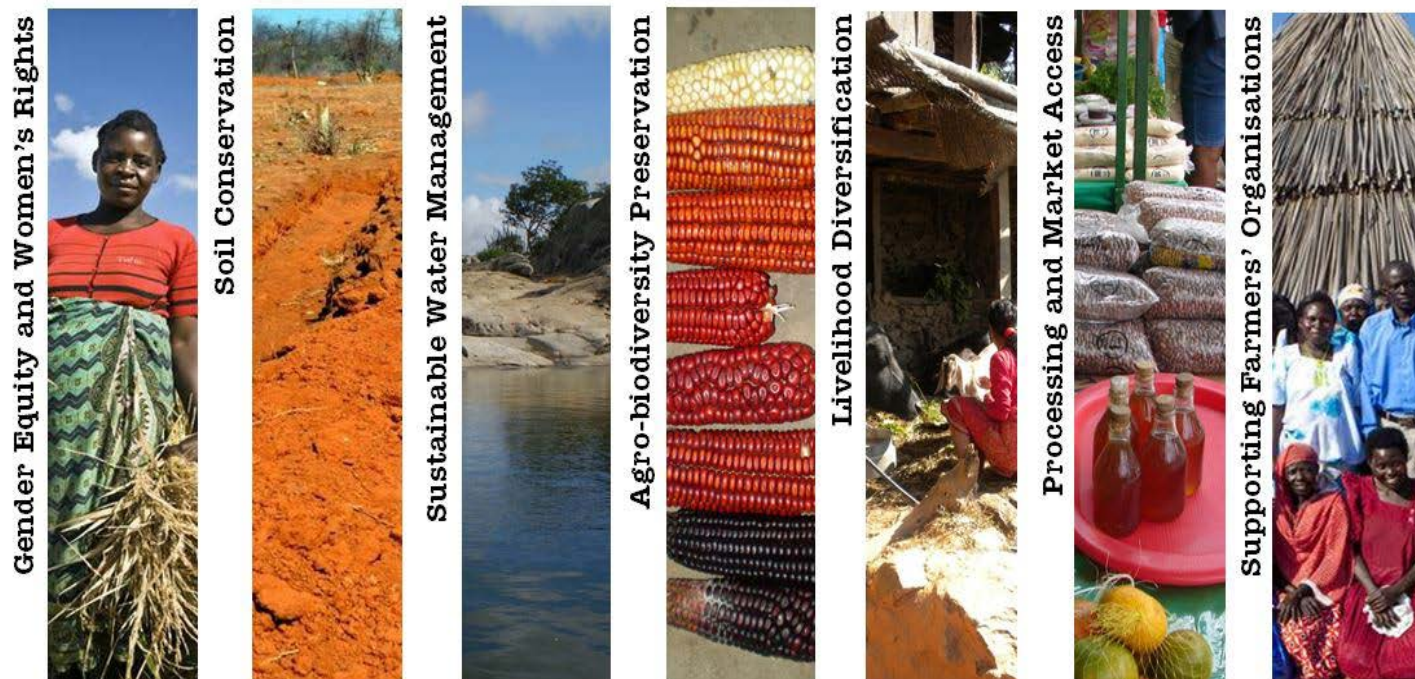
This transition process does not and must not happen overnight; complex farming systems cannot be transformed suddenly. The redesigning of production systems requires a series of small, very well planned and realistic steps. It requires that farmers take time to experiment, to test and to validate whether the small changes that they are adopting are bringing about positive results from social, cultural, economic, and environmental perspectives.

ActionAid's Climate Resilient Sustainable Agriculture initiative is based on four main approaches and seven pillars. See the below diagram for a visual summary of the main components of our initiative:

Four main approaches:

- 1** Conducting participatory appraisals to identify local potentials and political and technical challenges
- 2** Identifying, documenting, testing and diffusion of local knowledge/alternative practices and encouraging local innovation
- 3** Promoting sustainability through appropriate agricultural research and extension services based on technologies that reduce dependence on external inputs and agro-chemicals, help adapt to climate change, build on and reinforce local knowledge
- 4** Empowering farming communities to promote sustainable agriculture through local, national and global campaigning actions for policy and budgetary changes in favour of smallholders

With a particular focus on the following seven pillars:



CASE STUDY 1: Bangladesh

Pond-based irrigation and use of agroecological practices ensure food security

Naogaon District in Bangladesh has a richly diverse landscape and produces a high proportion of the agricultural outputs from the country – including over 11% of the total rice in Bangladesh. Naogaon is one of the most water-scarce areas in the country, however. Frequent droughts mean that water supplies are often unable to meet the regular needs of agriculture, livestock-rearing and domestic use. This problem began in the 1960's, with the introduction of 'green revolution' technologies to support grain cultivation in this region. This led to over-exploitation of the groundwater aquifer for irrigation, and caused serious environmental problems - most notably water scarcity and droughts. It is predicted that this problem will worsen in the future due to the effects of climate change. The majority of the people who live in Naogaon District are landless and dependent on agriculture (and particularly rice production) for their livelihoods, and most of the farmland is owned by a few landowners.

Abdul Aziz is a 42-year-old father of four from Haripur Village in Naogaon District. Abdul is a smallholder farmer, but due to water scarcity in the dry season he was unable to produce his main wheat crop. He was therefore forced to start looking for other work, or to borrow money at high interest rates to support his family.

Changing climate patterns and a lack of irrigation coverage for arable land in this district meant that insufficient water was available for agriculture, leading to a reduction in production and profits. The landowners in this area therefore started converting the agricultural land into mango orchards, which require minimal irrigation and are less labour-intensive. However, although more profitable for the landowners, this change of use had implications for food security and rice production, as the introduction of mango trees reduced the area available for food crops. As the agricultural sector is the main economy of the area, this conversion created

unemployment, decreased wage-rates and increased both seasonal and permanent migration of marginal farmers and agricultural labourers. Those who could not migrate -

especially women and ethnic minorities – would borrow money from the rich at high interest rates or sell their labour cheaply in advance, therefore becoming trapped in a vicious cycle of poverty.

Farmers in Naogaon started to consider sustainable farming practices as a result of the growing demand to ensure year-round agriculture through crop diversification and effective water resource management. Historically, the majority of agricultural activity in this area was rain-fed, and people would dig ponds to preserve the rainwater for harvesting during the dry seasons. However, water scarcity caused by the exploitation of the groundwater sources - coupled with climate change impacts - led to an over-reliance on these ponds for crop irrigation and other uses. People and animals would use the ponds without considering pollution control, so they became contaminated. This meant that people were reluctant to use the pond water, and as a result most of these ponds were out of use.

ActionAid Bangladesh started work in Naogaon in 2008, supporting a local partner to implement a community-based adaptation project to address climate change vulnerability. Five Gono Gobeshona Dols (GGDs- People's Action Research) were set up to facilitate community-level research initiatives. A combination of self-help groups and collectives, the GGDs worked with the communities to identify problems relating to climate change. They then used a combination of local and scientific knowledge to come up with solutions, which were then tested to find the best options for adaptation. Abdul has been part of the project since the beginning. He has been responsible for motivating others to be a part of this initiative. Women smallholders have also



Abdul Aziz, Naogaon District, Bangladesh PHOTO: ActionAid Bangladesh



Use of neem leaves as a biological insecticide PHOTO: ActionAid Bangladesh



The 'Magic Pipe' PHOTO: ActionAid Bangladesh

sustainable utilisation of the ponds could help to address the water scarcity issues in the area. So the groups came up with a solution – pond re-excavation and new pond excavation.

The initiative was undertaken to cultivate most of the land throughout the year after managing the water issues. This was combined with other sustainable techniques including crop rotation, sustainable pest management, and production and use of organic fertiliser. In the past, the ponds were mainly used for crop irrigation, but the women's groups came up with new ways to use this water. This included the maintenance of a separate pond only for human consumption (drinking, cooking, and bathing); and setting limits on the amount of water to be used for rice irrigation, to ensure enough water for vegetable production. A number of pond-based agricultural schemes have also been piloted in the region. These include cultivating crops with minimal irrigation requirements on the same land during the dry season, to increase and diversify income and to improve the communities' resilience against disasters.

Local alternatives to combat the effects of climate change have also been put into place - such as new alternate wetting and drying technology called the 'Magic Pipe'. This method measures the water requirements of the field and ensures optimum use of the irrigation water. It uses an innovative technique of placing a 30cm plastic pipe, with the top 20cm containing holes, in the topsoil of the paddy field. The holes allow water through during



Use of sex pheromones for pest management PHOTO: ActionAid Bangladesh

played a key role in the implementation of these practices, and three out of five GGDs are women's groups. Through discussions in the GGDs there was a wide consensus in the community that effective, organised and

Therefore, if water is in the pipe the farmers know there is no need to irrigate the crops in this field. Studies have shown that the Magic Pipe can help to reduce the amount of water

needed for irrigation by 25-30%. The technique has been very well received in Naogaon.

For pest management, the farmers use sex pheromones as an environmentally-friendly pest control technique in vegetable farming. The pheromone smell is added to a plastic tub, which is hung inside a plastic pot containing soap and water and a hole for the male pests to enter. The males drown, effectively reducing the number of the next generation of pests. Neem leaves are also used widely in vegetable and rice fields as a biological insecticide, a technique which was previously not utilised in Naogaon.

The community received some support from local government institutions in practising agroecology, including soil fertility testing and appropriate seeds; roadside plantation for income generation; poultry and cattle vaccinations; and pond re-excavation and ring-well installation. Moving forward, however, the community would potentially like to develop other sustainable agriculture initiatives such as low water intensive grass varieties, and more low water intensive crops. Suggestions for potential crops include mung lentils, strawberry, grape and drought-tolerant high-yielding grasses. The popularity of compost and vermicompost is growing, so there is potential for the community to look at extension of these techniques and subsequent marketing. In order to progress with these initiatives, the community would require technical and financial support, as well as the provision of seeds.

One challenge the community faced in implementing agroecology is that people in the area are generally living hand-to-mouth so it is hard for them to allocate time to organisational activities. The main challenge for the farming community in this district, however, was the lack of control over land. Most of the land in the area is owned by only a few people. These landowners determine crop varieties and agricultural practices used, which can be a barrier for the implementation of sustainable agriculture. Initially, there were some challenges relating to the necessary knowledge around sustainable practices in the communities in Naogaon. The farmers didn't have confidence in the techniques that could address water scarcity related to agricultural production. They also didn't know which seeds would be better for them to produce in this type of land, or the cost-effectiveness of alternative technologies. GGD has helped to address these issues through training, exchange of knowledge, and awareness-raising activities.

The irrigation scheme has had a big impact on farmers like Abdul in these communities, as they have been able to increase their agricultural production. Water is now available during the dry season and supplementary irrigation can be used throughout the year. This led to a significant increase in income from farming. This has also encouraged landowners to invest in agricultural production, which means more job opportunities for the

poor and landless and a reduction in migration. Fewer men, like Abdul, now need to move away from their homes or find alternative sources of income in the dry season. Women have also been empowered through this project and are increasingly participating in all project activities, particularly research and innovations.

The women's groups have in fact completely changed the way these ponds are used in these communities. Through effectively using the pond water for vegetable production, both to sell and eat, food security and nutrition has improved. Additionally, the separate pond for human consumption has brought health benefits and improved living conditions. The women have also been involved in resolving disputes at local level, which was traditionally seen as a 'male' role. Gender-based violence, early marriage and the use of dowry have reduced significantly in Naogaon. Abdul talks about the benefits to women in his community: *"In our area Muslim women are not working in the field...they work in crop processing...Adibashi women don't have this kind of restriction...they work in the field equally with the male."*

As a beneficiary of the irrigation scheme, Abdul shared: *"I had skill of a farmer but I could not utilise it earlier to 2008, when we re-excavate our pond for the first time to store rain water for dry seasons. I used to be a small scrap trader in the village. It was very difficult to survive..."*

now I can cultivate my own land...additionally now we can eat fish almost every week from our pond. All these were beyond my imagination, now it is reality because of the ActionAid project activities."

In terms of productivity, Abdul says: *"...now we get huge production from the land even in the dry season. Only from wheat production I get 40 Mon in this season, that was impossible in previous time. Now we can make profit."* Abdul stated: *"Pond scheme has reduced our water crisis. Now we can produce wheat, potato, corn, cucumber, and onion in the dry season by the use of this pond water. We are now getting many benefits and we make profit. This project has helped us a lot. In my scheme, we are 42 people and all of us are happy to get these benefits."*

This project has provided the climate change affected communities in Naogaon with the means to identify their problems, and come up with their own solutions. The community now has collective power as well as knowledge on the impacts of climate change and the best processes for their community to adapt to these challenges.



Abdul Aziz, Naogaon District, Bangladesh PHOTO: ActionAid Bangladesh

CASE STUDY 2: Brazil

Agroecology as an opportunity for women's empowerment

Pajeú, in the state of Pernambuco, is a semi-arid region in Northeast Brazil that suffers from water scarcity and frequent, prolonged dry periods. The growing uncertainty about the climate behaviour in this area is bringing new challenges for practising agriculture, and therefore to the food security of the region. This context also has a dramatic influence on the quality of life of rural women, as they are mainly responsible for the provision and management of water in their households. Alongside these climate issues, women in this region are also vulnerable to domestic violence and a lack of opportunities to enter the formal labour market.

Maria Aparecida de Lima Silva is a 34-year-old married woman from Afogados da Ingazeira in Pajeú, and a member of the Network of Women Producers. Prior to the project, Maria's community was dependent on external inputs, like chemical pesticides. Farmers also regularly suffered from chronic water shortages that limited agricultural production.

As in many other rural areas in this semi-arid region of Brazil, women like Maria would play a traditional role in the community and take care of the home and their families, with little opportunity to earn an income. The backyard and the area around the house was the traditional space for women. Women were usually responsible for fetching water, collecting firewood, small animal rearing (normally pigs, chickens, goats and sheep), and the production of vegetables in kitchen gardens. In this traditional division of work, women were more focused on food production for consumption in small backyards, whereas men usually took care of cows and the production of cash crops. Women would also work with men in this agricultural production, but would receive little recognition for their labour.

In 2005, the Network of Women Producers from Pajeú was established to address the vulnerability of poor women to violence and to promote their education as well as social inclusion.

The Network - made up of ten women's groups - aims to break the isolation of women in rural and peri-urban areas and work towards dignity, income and food security



Women farmers, Pajeú,
Pernambuco PHOTO: ActionAid Brazil

in their communities. The Network is managed by the women themselves, who fight for women's equal access and control over natural resources. Casa da Mulher do Nordeste, an ActionAid Brazil partner, established a technical assistance programme in 2005 to encourage and support the Network, and women like Maria, to practice agroecology - starting with the sustainable practices already in use in the region.

The intention of the programme was to empower the women through agroecology by supporting them with knowledge on planning, production and marketing. The initial step was participatory planning. Women do not usually participate in planning processes in this region and therefore have little say in agricultural production. During the development of the participatory methodology, the women were fully involved in the planning process so that they were able to feed in to the production activities and other processes.

Following this, a process of collective construction of knowledge took place through farmer-to-farmer exchanges, involving all the women Network members at community level. Agroecology practices were then put into place in small plots. Sustainable alternatives included the use of cisterns (a cement tank that can be used to collect and store rainwater), fences, improved poultry housing (chicken cages), flower beds, and the production of better quality animal fodder. The women farmers invested in local seeds, soil preparation and fertilisation.



Maria Aparecida de Lima Silva.
PHOTO: ActionAid Brazil

Once these alternatives had been tested in small plots in the backyards, the practices were extended to areas further from the house. This land had better soil and water sources and was previously considered to be the domain of male farmers.

Agroecology has helped these communities to coexist with the semiarid climate in this region through the use of sustainable soil management, enhancement of biodiversity and the food supply for animals, among other practices. This process has helped to put women in charge of managing agricultural processes. As a result of these sustainable alternatives, the women's groups were able to increase food productivity and availability, and therefore food security. The implementation of cisterns to harvest rainwater means that families can survive the prolonged dry periods with less impact on food security. These rainwater catchment infrastructures have also led to more openness in family relationships and a greater appreciation of women's work.

The women farmers took part in a process of reflection following the intervention. ActionAid and Casa da Mulher do Nordeste supported the group to record and share their experiences of agroecology and the struggle for rural women's empowerment and rights. The process included sharing with other women's groups, trade unions, the Women's Forum of Pajeu, and in spaces where public policies were developed, such as councils and agroecology meetings. The groups also worked on strategies to improve their access to markets and

agroecological fairs. This was a key element of the programme - to ensure recognition of the women's work and fairness in the distribution of produced goods. Women were also empowered politically through agroecological and feminist movements as part of this programme.

Maria talks about the changes brought about by agroecology, and the impact that this initiative has had on women farmers of this region: *"Working with agroecology brought several changes to our lives. It changed our daily lives, now we get out of our houses, of our community; we participate in events, seminars, workshops, trainings. I have more knowledge that allows me to increase my income. This is a very important subject for women of the community, so we have a group to discuss it... before, the whole community used pesticides - with the debates, workshops and trainings this is now changing. Today in my community almost nobody else uses chemicals. Now in Afogados we have an organic fair and even people from other communities bring their production to sell. The fair is also a stimulus. Today we talk about how to produce without polluting, and how to consume water consciously."*

She describes how women's roles have changed since the beginning of the agroecology initiative: *"When women began to work with agroecology their lives changed and when the lives of women change the lives of her family change for good. Especially when talking about income and education. Many of them already knew how to produce with the agroecology practice, but they didn't know how to calculate prices and how to sell their crops...today we have more women in events, in meetings, before the women did not see themselves in the condition to leave their homes to participate in activities and attend meetings. The women's role was to stay at home taking care of everything: her son, husband, cleaning, cooking. The work made with gender issues, gender relations, sexuality and work, increased participation of women and allowed them to conquer other spaces."*

According to Maria, agroecological systems also appear to be more resilient to climate change effects: *"One of the biggest problems we face today is the drought that lasted nearly three years. We lost many crops. But we see that families who are producing with agroecology technique, using native seeds, storing water in various ways, benefiting fruits, storing food for animals, are not having as many problems as other families who do not work with agroecology."*

CASE STUDY 3: Cambodia

Improved livelihoods of smallholder women farmers through market linkage

Klay Sareth watering her vegetable garden

PHOTO: Savann Oeurn /ActionAid Cambodia



Ou'Tong village is located in Oddar Meanchey province in Cambodia. The adoption of more mechanised farming methods in recent years has resulted in the forests being cleared in this region. The area is prone to drought and floods, which have worsened due to climate change and the removal of the forests. The rural communities have been the worst hit.

Women in Oddar Meanchey play a crucial role in agricultural production and community forest resources management. They are also responsible for livestock rearing, home gardening and marketing their produce to contribute to the food security and income of their households.

Klay Sareth is a 51-year-old smallholder farmer from Ou'Tong village. Sareth and her husband, Doeun, have five children. They depend primarily on agriculture for their income and food security. They farm two hectares of land for rice cultivation, and another 0.32 hectare for growing vegetables and crops. In the past, it was difficult for Sareth and her family to earn sufficient income from their land. They had previously been forced to migrate

to Thailand for work. The issues that Sareth faced had increased in recent years, and lowered her productivity levels even further. This meant she had fewer products to market for income generation.

Smallholder farmers like Sareth faced many challenges in agricultural production in this region. In the dry season there were severe water shortages, which restricted farm production and food security. Additionally, farmers had limited access to markets to sell their surplus produce. There were no government schemes in place to improve and share agricultural knowledge and skills on sustainable farming methods. The communities in this region also had no way to engage with local decision-makers, local authorities and government agricultural workers. This situation resulted in higher migration - mainly by men - to provide supplementary income for their families.

The use of pesticides and other chemical inputs in agricultural practices was also common in Oddar Meanchey. These chemicals were expensive, and smallholder farmers were often unable to access



Klay Sareth feeding her pig

PHOTO: ActionAid Cambodia

affordable credit for these and other agricultural inputs. Additionally, the use of chemicals can damage the environment and there were increasing concerns about the impact of their use on producer and consumers' health.

In early 2012, Sareth was selected to be part of a women's enterprise group through a project implemented by the Children's Development Association (CDA) and ActionAid Cambodia. The objective of this agricultural collective was to promote sustainable practices and to strengthen the access to markets for agricultural products. Following the formation of these collectives, Sareth and other farmers from each of the target villages were provided with financial support, and skills training on agroecology and agribusiness development and management. Farmers would put monthly savings in a collective box, based on their profits.

Different methods and techniques were used as part of this agroecology initiative. For example, community water users' groups were formed to address the water shortage and irrigation issues. Each member was trained on sustainable water management, basic maintenance and water laws and policies. Community dams and ponds were built or rehabilitated to enable the catchment and storage of water, particularly for the dry season. Drip irrigation was also introduced in one of the target villages to reduce labour in watering the crops. Sustainable irrigation methods save time, thereby allowing farmers to perform other productive tasks, and reducing the burden on women.

In order to support links between production and local markets, a women's market group was set up to ensure they obtained good prices for their products. The members received capacity-building on value chain, business plan development and agricultural market analysis. Meetings were set up between middlemen, the market group and producers to better share fair prices

from their local agricultural value chain. Agricultural products were promoted through local radio and roundtable discussions. Increased linkages to local decision-makers were developed through their engagement in the Village Development Plan and the Commune Investment Plan. The smallholder producers and forestry community members were also linked up to improve sales of their products.

To increase the sustainable agriculture knowledge and skills in the communities, farmers were organised into groups for skill-sharing and training on sustainable farming techniques. The training focused

on utilising locally-available resources to improve soil fertility (including liquid organic fertiliser and compost), and the production of organic pesticide to control pests.

These methods use materials that are easily accessible and cost-effective for smallholder farmers, and they also reduce the health implications of chemical inputs. Diversified crop rotation was introduced, where a variety of vegetables were planted and rotated according to its season and market demand. Livestock-rearing was also introduced for meat and income, and their manure was used to improve soil fertility. Multi-purpose trees (trees that can be used as a source of food, animal fodder, firewood and to improve soil fertility) have also been integrated into the farming systems. Sareth, along with other collectives' members, also took part in an exchange visit to learn and share new farming experiences and sustainable techniques.

However, farmers in Oddar Meanchey have faced a number of challenges in putting sustainable agriculture into practice. For example, sourcing the raw materials to make organic pesticides and compost has proved difficult. There was also a lack of production tools and other equipment to practice agroecology. So far, local government institutions have played no part in the implementation of sustainable farming practices in these areas. Only NGOs have been active in supporting farmers and the community. Both CDA and ActionAid Cambodia have engaged with the Department of Agriculture, who responded that they had no budget to implement agroecology initiatives.

The Government of Cambodia have passed a law on establishing agricultural cooperatives to support the rice export policy, and there is potential for the collective to form as a legal agricultural cooperative. CDA is currently working with the Department of Agriculture in Oddar Meanchey to establish an agricultural cooperative, which

will help farmers get better access to agricultural inputs and markets.

Smallholder farmers like Sareth have found a means to improve their livelihoods through the use of agroecology. According to interviews with farmers in this region, agroecology has reduced the cost of agricultural production by up to half. Sareth is now able to earn a stable income from her land as she can generate year-round income through continuous and seasonal cropping. She says: *"Before, I grew without proper technical skills, but after receiving a lot more technical support from CDA, I can produce more."* There is also a huge demand for their produce in the project areas: *"I can collect as much as farmer can produce...they like eating vegetable produced by farmers in the areas. They are not afraid to eat these vegetables though these vegetables are not good-looking"* says Sareth.

Part of Sareth's additional income goes towards education for four of her children, and some is used to expand her current business. Her family have more sources of food available, which has improved their food security and nutrition. According to the women's groups, the project has also had a positive impact on the women. There is now no need to travel to buy fertiliser and

pesticides, giving them more time to perform other tasks. Women's workloads have been reduced through the provision of a drip irrigation system that doesn't require as many manual inputs. The use of agricultural machinery that women can operate easily has also helped to improve their lives.

Women have been empowered and they have a greater say in family life, and make decisions to improve their communities. Putting in place market infrastructure that favours women has also supported them to improve their access to markets. Moreover, the diversified cropping systems and other sustainable techniques have increased the resilience of local production systems to the effects of climate change.

Sareth says: *"My family is improved. We have enough food to eat for the whole year, particularly I can support my children's schooling. Now my eldest sons are in the university in Siem Reap, and my youngest daughter is going to finish her high school this year."*



Community meeting, Ou Tong village PHOTO: ActionAid Cambodia

CASE STUDY 4: China

CRSA practices and the change in Sanliu Village

Sanliu village is located in Hanyin County, Shaanxi Province, China. Much of the village was destroyed in an earthquake in 2008, and has been rebuilt through aid money. Life was very difficult for the people here, most of whom lost their assets in the earthquake. Agriculture is the main livelihood option in the village, and women are the main labour force for farming. Although over thirty varieties of food crops and over twenty varieties of cash crops are grown, smallholder farmers were previously unable to make an adequate living from agriculture. The village has a population of 832 people in 227 households, divided into four village groups.

Previously in Sanliu village, agricultural production was hindered by difficulties with storage, access to market, price fluctuations and demand for crops. Farm produce was sold directly to the market or to vendors, and farmers had little information about market prices. They were therefore unable to get good prices for their products, or compete with other producers. Unsustainable farming techniques using chemical inputs had increased in the region, which were disrupting the ecosystem. Intensive use of chemical fertilisers and pesticides, along with deforestation, had also resulted in water pollution and reduced the availability of water sources (groundwater).

Before ActionAid China's intervention, the only option for the young and educated male labourers was to leave the village for work in the cities. Whereas the women, with no alternative livelihood options, were forced to carry out the majority of the community work - including farming, housework, care of livestock and care of children and the elderly. As a result of this migration and decline in people engaging in agricultural production, farmland in the village was left unused. Low literacy levels among

the remaining farmers resulted in difficulty in accessing and using new technologies and information, which led to a reduction in agricultural productivity. This, in turn, increased the problems of food security and poverty - especially for the women, elders, and children left in the village.

ActionAid China started its work in the village immediately after the earthquake in 2008, aiming to support local residents to rebuild their livelihoods and restore their hope. While the Government provided initial aid and resources to rebuild houses and facilities, ActionAid supported the community in the formation of farmers' cooperatives and the promotion of climate resilient sustainable agriculture (CRSA) practices. The cooperatives were formed to bring additional income to the village through agriculture and to reduce poverty. The focus was on vulnerable groups, particularly women. Half of the group leaders were therefore women, who participated in all decision-making processes.

The efforts of ActionAid China motivated the community in Sanliu to start practising agroecology to address the issues they faced with climate change, agricultural productivity and increased migration of the male labourers. ActionAid conducted trainings on different aspects of agroecology, but also on women's healthcare, advocacy, and art and aerobics classes. These trainings provided the women with more opportunities to interact and relax outside of their demanding agricultural roles. The women realised that through the sustainable agriculture programme, the community would be able to work together to improve their livelihoods.

Initially, a meeting was organised with the community elders and the villagers were interviewed to identify the strengths and weaknesses of Sanliu. Based on this process, ActionAid China supported five women in the village to start practising CRSA in 2009. The community decided to start a free range chicken initiative, by keeping local species of chicken within the forests without commercial feed. In this production system, the animals suffer less stress as they are not kept in small cages. They can express their natural behaviour, roam freely, and can complement their feeding with what they are able to find in the forest.



Community meeting in Sanliu village PHOTO: ActionAid China

The women were supported with training on sustainable agriculture and animal-rearing. This included how to raise chickens without commercial fodder, and how to introduce ducks

to rice fields to control pests and weeds, thereby reducing the need for chemical pesticides. They were also provided with 500 chickens. A further five households started practising sustainable agriculture in 2010, and the total number of chickens kept in the forests increased to 1,000. A working group was established in 2010 to promote agroecology through advertising and showing movies on a monthly basis in the village. In 2011, following the success of the agroecology initiatives, over thirty farmers expressed their willingness to join the working group and started practising agroecology. Of these thirty households, eighteen were selected to join the working group, which was renamed the 'Mutual-Aid Group'. With this addition, the total number of chickens farmed in the village rose to 3,000. At the group meeting in May 2011, all members agreed to contribute to a mutual-aid fund for the village, which was managed by a committee of four members, including two women.

After a few months, the group decided to register as a farmers' cooperative. Responding to this request, ActionAid China invited experts from the Northwest Agricultural University to provide training sessions on regulations, case analysis, and management of farmers' cooperatives in China. These trainings also attracted 50 people from 22 other villages and officers from the township. Meanwhile, in order to market their products, the group sent representatives with their chickens and eggs to Xi An farmers' market - a project of ActionAid China. This market takes place in Xi An city on a monthly basis, and brings together farmers practising CRSA to sell their quality products. Meetings among consumers and farmers are also organised at the market, so that consumers can understand how the CRSA products are produced. The chicken and eggs they took to the farmers' market sold for 60-100% higher prices than the regular products. Encouraged by this successful marketing, the number of chickens increased to 5,000 in 2012.

The group also began to explore another model of agroecology: the introduction of 300 ducks within an area of rice field. The integration of duck rearing and rice production has several advantages: it is a good way to intensify the use of the soil, and the animal manure supplies some of the nutrients the rice needs. As in the case of the free range chickens, the animals can behave normally and the ducks eat and reduce the amount of insects in the rice field.

Meanwhile, the registration for cooperative status was successful, and the group set up an internet business and a shop for their products in Xi An City. The cooperative also continued to participate in Xi An farmers' market on a monthly basis. CRSA practices continued to grow in 2013; the area of rice cultivated using sustainable techniques was extended and the number of chickens increased. The cooperative started value-addition activities, such as simple packaging and processing of CRSA products.

Additionally, ActionAid China has also supported 20 women in Sanliu to practice 'micro vegetable gardens' to

grow different types of vegetables for their families, without using chemical fertilisers and pesticides. Another new model of agroecology that is now being practised by eight women is 'recycling farming', that combines pig keeping with cropping. In this model, pigs are fed on side products from cropping and crops are fertilised using pig manure. Today, there are four organisations operating in Sanliu village: the Financial Mutual-Aid Association, Agroecology Cultivation Groups, Livestock-Raising Groups and Farmers' Cooperatives.

Since the farmers started practising CRSA in Sanliu, things have changed for the better in the village. The use of sustainable farming techniques that no longer require commercial fodder has reduced farmers' expenses and the risks to the environment. As the chickens produced through sustainable methods acquired higher prices at the local market, they have allowed the community members to increase their income. Most of this increased income has been earned by the women, who remained in the village following the migration of the male labourers.

The cooperative, formed to promote agroecology, also became a platform for the women to organise healthcare trainings and to participate in leisure activities. Quality of life for the villagers, and particularly for the women, has improved immensely since the project started. The community started to organise dance and performing arts events, and today dancing is a daily practice for most of the women. Shadow puppetry and traditional folk arts are now also shown in the village twice a month.

A lack of marketing capacity and networking remains the major challenge in practising agroecology in Sanliu village, however. The scale of the programme and quality of the products need to be improved going forwards, and continued financing from the government is needed to support training in agroecology and marketing.

The success of the farmers' cooperative in Sanliu village has been recognised by the local government. The County Governor requested a discussion with the ActionAid China Coordinator in Hanyin. Afterwards, the Governor suggested a plan to promote the agroecology practices in other villages in the county, and a new plan for Sanliu village was developed with the cooperation of



Sample site selection in Sanliu village PHOTO: ActionAid China

relevant stakeholders. Additionally, the Poverty Alleviation Development Office allocated funds to the cooperative to continue practising sustainable agriculture. With this fund, the number of households practising agroecology now stands at 85.

The CRSA practices used in Sanliu have also been recognised at provincial and national levels. Sanliu village was invited to present their story at the Shaanxi Sustainable Agriculture Workshop in Xi An, and on the Forum for China Farmers' Organisations in Beijing in December 2013. Additionally, Sanliu village recently won a contract to supply their produce to a green product enterprise. Yangling TV and CCTV are planning to present the story of Sanliu village in a special programme about sustainable agriculture in 2014.

The changes brought about through practising agroecology have been remarkable. The project has reduced poverty by improving the prospects for families in Sanliu to make a decent living from agriculture. Sustainable agriculture has also reduced the stresses on the land and enabled the community to improve their adaptation to the climate change impacts. Previously, women were required to stay in the village with no opportunity to earn an income and not enough quality food. They felt helpless and stressed by their situation, particularly following the earthquake. Today, the psychological burden on the women of the village has reduced and they have become empowered to be able to make decisions, and support the members of their community to be able to improve their livelihoods.

Pu Xiuying describes the changes she has seen in her village and life since ActionAid started work in Sanliu: *"Hello. My name is Pu Xiuying. I live in Sanliu village with my husband and grandson. My son works far away as a migrant worker. I do most of the work at home and in the field as my husband is in poor health following a heart attack."*

Every day I wake up early. I pick grass for our livestock and cook for the family, before going off to work in the fields. I go home to cook lunch and take it to my grandson at school. I work all afternoon, then cook dinner. At night, I do the housework and look after my family. I go to bed late. My days are long and monotonous.

But thanks to ActionAid, our life has improved a lot. Some years back, ActionAid gave us chicken-raising training and some chicks. At first I raised 50 chickens, and I have increased this number to 200. I now earn more than 8000RMB [£832] a year and can buy my grandson books, pencils and so on. I plan to raise more chickens to increase our income.

I have also learnt to read and write in the village learning centre, supported by ActionAid. I can write my name and read many words, which I never imagined I would do. We spend less money on medicine now, since I learned about how to stay healthy. ActionAid has also helped us get the attention of the local authorities. Our living conditions have improved, and local leaders come to our village to see how we are and what we need. Last year, they subsidised us to rebuild our house! I feel happy in my old age, and I attribute this to ActionAid."

One of the success stories in Sanliu village PHOTO: ActionAid China



CASE STUDY 5: Mozambique

Capacity-building training can help women to take the lead in sustainable agriculture practices

Manhiça District is one of the rural areas in Mozambique prone to seasonal floods and erosion. Agriculture is the main livelihood in this district, and women are responsible for the majority of agricultural production to feed their families. It is also very common to find them selling their surplus products in the local markets.

As in many areas across the world where agriculture is practised, Manhiça District faces issues such as conflict over land access and control; intense use of the existing production systems; unsustainable practices such as soil burning; and soil mismanagement. These issues have resulted in the degradation of natural resources, which reduce agricultural production and food security. This situation has been further exacerbated by climate change-related problems.

Margarida Ubisse is a 48-year-old mother of four children from Manhiça District. She is a smallholder farmer and member of the Eduardo Mondlane Association. The Association is an ActionAid partner, and they support women with income generation from farming by building

their capacity in conservation agriculture techniques.

Margarida has been practising sustainable agriculture since 2009 following a farmers' exchange visit organised by ActionAid. During the visit she witnessed sustainable agriculture techniques and the benefits they can bring. She initially couldn't believe that it was possible to have such healthy crops without the use of fire on the soil. Margarida decided to take up sustainable practices on her own land and committed herself to improving the community's capacity in practising sustainable agriculture. Margarida is now a facilitator in sustainable agriculture and she is helping other farmers to use these techniques to improve their sustainable production, and their lives.

In 2010, the Eduardo Mondlane Association started to promote sustainable agriculture practices by organising capacity-building sessions on conservation agriculture techniques, and establishing demonstration fields. The trainings were focused on the promotion of sustainable techniques such as crop rotation; soil and seeds



Margarida Ubisse farming,
Manhiça District

PHOTO: ActionAid Mozambique



Margarida Ubisse capacity-building training
PHOTO: ActionAid Mozambique

conservation; soil permanent cover; and water management through the building of valets and dikes to facilitate water drainage. It was agreed that Margarida would facilitate the establishment of fields to demonstrate the positive impacts of sustainable agriculture techniques.

The community faced various challenges in practising farming in this sustainable way, however, due to the lack of government support on extension services and limited information about sustainable agriculture. Initially, there was a lot of hard work involved to set up this new method of farming. The community faced a lack of technical support in the implementation stages, and machinery to facilitate their work. They also lacked quality seeds, and there was limited information available on the impacts of climate change. Access and control over land is another key challenge that smallholder farmers in this area are still facing; many of the farmers have to wait over five years for land titles.

However, these practices have brought clear benefits to the farmers of Manhiça District. According to the farmers, productivity has increased by over 12% through sustainable practices, meaning more income and resources to enable the community to maintain their families. In recent years the major change in the community has been the reduction in the use of fire on agricultural land, which has revived the land and dramatically improved productivity. The introduction of sustainable agricultural practices has also allowed the soil to recover and increase its structure and fertility. The community is now producing high quality agricultural products, which are less vulnerable to pest attacks. They have also been able to secure a market for their produce.

A further benefit has been the increase in knowledge about land laws and women's rights to land. Today, women are aware of their rights and the processes to claim them. Four members of the Association are paralegals and, alongside advice on land rights, they have been helping to defend the community from land grabbing.

Moreover, Margarida and other women farmers have gained confidence and respect in their communities

through this project. Margarida, visibly moved, describes her experience: *"When they made the proposal that I would be the facilitator, I became very emotional and I almost did not believe. Not because I lacked the capacity to do it, or because there was a possibility to earn money, but because I realised that after all what I do was seen and appreciated by other people. I did not ask for any time to think it through; I responded immediately. I accepted the challenge."*

"I established three demonstration fields in three associations covering about 200 people. In spite of the heavy rains and strong winds that destroyed part of the crops, the enthusiasm and involvement or commitment of the participants is notorious and I am of the opinion that the majority will adopt this technique. I think that because of the fact that everybody knows me, there is more trust and openness to ask questions and even to suggest alternatives to a number of issues. In addition, the fact that they know me, gives them certainty and guarantee that I cannot get them to do something that is not profitable. Thus, they have visited my machamba (crop field) and had the opportunity to see the benefits I have."

The use of local facilitators – and subsequent decrease in implementation costs and ongoing supervision - has meant that it is an economical and viable alternative. Today, over 40 farmers have joined the Eduardo Mondlane Association and they are producing sugarcane, bananas, cassava and maize over 60 hectares of land. In addition to helping the environment, these practices have also reduced the burden on women like Margarida. They have more time to be with their families, take care of other domestic and social duties and ensure food security for their families.

Margarida and her fellow farmers continue to promote sustainable agricultural practices to other communities. However, they need policy and budgetary support from the government for the dissemination and adoption of these practices at a national scale in Mozambique.



Margarida Ubisse practising sustainable farming
PHOTO: Celso Marcatto / ActionAid

CASE STUDY 6: Myanmar

Agroecology brings about changes in Seik Phyu Township

Seik Phyu is a township made up of 238 villages in the dry zone of Myanmar. This region is semi-arid, often with difficult terrain with very challenging climate conditions. The whole area faces problems with land degradation, decreased soil fertility and drought. These problems have recently been getting worse due to the effects of extreme weather caused by climate change. Generally, farming is the main livelihood source for both men and women in Seik Phyu. The majority of the villagers cannot afford to own much land, as most of the agricultural land is owned by the rich, and mainly by men.

In Myanmar - particularly in rural areas - women do not have the same social status as men. In the case of Seik Phyu Township, social norms and traditions are deeply rooted, often leading to women feeling inferior and unable to take part in decision-making processes in the community. There is also limited access to education in this region, as only primary schools are available in villages.

Daw Thi Thi Pyone is a 38-year-old mother of two sons from Ywar Thit Kyi village in Seik Phyu Township. Both

she and her husband are farmers. They grow sesame, peanuts, and chickpea in the rainy season and winter. In summer, like most farmers in the dry zone, they grow onion and garlic, and some vegetables and flowers near the stream where the wet sand contains sufficient moisture.

Ma Kay Thi Win is a 32-year-old woman grocery shop owner from the same village. She is a widow with two daughters and one son. Kay Thi and her first husband used to farm their parents' land, but she started the grocery shop after her husband had passed away. When her second husband also passed away, she had no option but to move back to her home village to live with her parents. Due to her debts she couldn't afford the school fees for her children.

In addition to the usual agricultural challenges of the dry zone, extreme and unpredictable weather in recent years has put the communities in this region in a more vulnerable position. Farmers are particularly affected by the heat and drought in the summer season, when there is not enough water for irrigation. Due to the limited



Research on Chick pea seeds, Seik Phyu Township PHOTO: ActionAid Myanmar



Seed multiplication through Seik Phyu Township Agriculture Department

PHOTO: ActionAid Myanmar

livelihoods options in summer, poor farmers often need to search for other employment alternatives, leading to high migration of men. Alternatively, they fall into a debt trap by borrowing money, seeds or rice.

With the burden of debts and the unpredictable climate, smallholder farmers suffer the most as they are unable to afford the inputs to cope with the degraded agroecological conditions. They depend on imported products (such as fertiliser) so are vulnerable to price rises due to their limited bargaining power. Smallholder farmers in this region also face challenges with accessing markets, including transportation and obtaining a fair market price for their products. As a result of these confounding factors, many of the inhabitants of Seik Phyu are among the poorest and the least food secure in the country. In recent years, drought has resulted in very low - or negative - returns from agriculture.

In 2010, the Community Initiated Livelihood and Poverty Reduction Project (CILPRP) was started in this region, supported by the ActionAid Myanmar Youth Fellowship Programme. The project proposed to improve the food security and resilience to climate change effects in this region through the use of agroecology.

Participatory vulnerability analysis was used to identify the least-developed 15 villages in Seik Phyu Township. Overall, fifty villages across three townships in Magway Region (Seik Phyu, Pakokku and Myaing) were selected to be involved in this intervention. Within these villages, a community participatory process was used to select the poorest and most vulnerable families to form self-help groups. The focus of the project was on women's empowerment, and the objective was that, over time, the

groups would become self-sustainable and able to manage their own resources.

The Fellowship Programme strongly encourages community members to participate in the development process, to assess and prioritise their needs and resources to create village development plans. This process is facilitated mainly by women Fellows - who have formed their own CBO in Seik Phyu, covering all 15 villages in the township. The results are documented in a "Village Book", which also serves as a bottom-up plan for Government-led development initiatives. The families were supported with cash grants and awareness-raising training to empower women. Community members were also provided with training on sustainable agriculture techniques, and technical support to increase agricultural productivity, food security and household incomes.

In order to increase the preparedness to climate change, particularly prolonged droughts, the project supported mitigation and adaptation activities through community action plans. Access to irrigation sources was improved in order to prepare for droughts, and water ponds and fire-watches were put in place to improve sustainable livelihoods.

Prior to the intervention of this project, local farmers were unaware of alternative sustainable methods to improve productivity. The project therefore supported agricultural research alongside government departments and institutions. The research in Seik Phyu focussed on the promotion of natural fertilisers (such as animal manure) and reduction the use of chemical fertilisers, and climate change adaptation. Research was also conducted into seed multiplication. Seed storage and distribution points

were established in each project village, as well as a township communal seedbank in each of the three townships, which are not only used for seed storage but also as a facility for training and awareness-raising activities. These enable the villagers to produce good quality seeds and store their extra seeds.

Through the research, and subsequent seed multiplication, it was recognised that the size and rate of yield of the new varieties developed by Yae Sin Agriculture University (Yae Sin 6 and 8) were much better than the varieties farmers were previously using. In Seik Phyu Township, these new chickpea seeds were selected and distributed to farmers for multiplication. Thi Thi Pyone was one of the farmers engaged in the multiplication of the new chickpea seeds.

The new variety of chickpea has proved to be less vulnerable to adverse climate conditions. The improved yield and reduced production costs have supported smallholder farmers like Thi Thi to be able to improve their income. The seed banks have provided the communities with access to good quality seeds year-round, and have also reduced their expenses. This additional income will be used by the community to improve the condition of the village, to invest in new businesses, and for children's education.

Daw Thi Thi Pyone expresses her joy about the harvest using the new chickpea seeds: *"I sowed about two 'baskets' of seeds and some are given by other farmers. Though some plants died as roots were rotten or due to water shortage, I still received 7.5 baskets of seeds after harvesting. The rate of yield from each single plant was great!"*

The project has reduced the dependency on chemical fertilisers, and improved irrigation has resulted in better rice harvests. The use of the "Village Book" has also enabled the ActionAid Myanmar Fellows to form linkages between the Government and village action plans proposed by the communities. The book has now been endorsed by local authorities, who aim to roll out this initiative to villages in every district. In 2013, the village action plans were presented to Members of Parliament in the three townships, urging them to take action to respond to these demands.

The provision of cash grants and educational training, as well as their involvement in self-help groups and Reflection-Action¹ circles, has helped to empower the poorest and most vulnerable families and the women in these villages and to enable them to improve their livelihoods and make decisions in their communities.



Ma Kay Thin Win and her grocery shop, Ywar Thit Kyi village PHOTO: ActionAid Myanmar

Ma Kay Thi Win describes her experience as part of the project: *"I felt very glad when I was chosen as a member of self-help group because I'm very poor and I had to lead my big family. The villagers selected me and thus I received (83,050) Kyats revolving fund from the project to start my own business. I am able to run a small grocery shop at my house, so I do not need to sell the boiled pea and steamed sticky rice in the villages anymore... gradually I save the profits and put up more goods at my grocery shop."*

I also borrowed some more money agreed by self-help group members to expand my grocery shop ... now my eldest son is serving as a soldier in the national army, my first daughter is at school in Grade 7, and the youngest daughter is in Grade 2. Now I don't have to worry about their school fees, as I have regular income and no debts. I am no more treated as a poor woman ... our women self-help group members contributed money in village affairs. And we also provided refreshments in moral education training for children in our village. These are the fruits which come out from our hard works and supports from the project."

Overall, more than 28,000 people have benefitted from this project. The case studies from the communities in Seik Phyu Township demonstrate the way people in the dry zone can improve their food security and be more resilient to extreme weather through community-based initiatives and meaningful engagement with relevant actors.

¹ ActionAid's participatory group methodology based on the process of building empowering spaces to reflect on key community issues and identify collective actions to resolve them

CASE STUDY 7: **Nepal**

‘One House, One Compost Pit’ campaign



Women farmers practice compost preparation, Udayapur
PHOTO: ActionAid Nepal

Udaypur District is located in Eastern Nepal. The region consists of both plains and hill areas, and many of the agricultural lands are prone to flooding. Women are the major food producers in this area, engaged in all stages of production - from planting to harvesting. Women's access to and ownership of land (whether jointly or individually) in Udaypur has increased over the years, bringing economic opportunities for women in farming.

The major problem faced by farmers in this area was the increasing use of chemical fertilisers and pesticides in agriculture. These pesticides were damaging farmers' health and their environment, and chemical fertilisers were having some negative impacts on soil structure and soil organic matter. Alongside this, for smallholder farmers they were a costly input, reducing the spending on education and healthcare for their families. Farmers started preparing and using compost on their farms in 2012 to replace chemical fertilisers.

The availability of good quality seeds has also been a challenge for farmers in this region. Farmers rely on markets for various seeds. Poor quality control mechanisms and limited technical knowledge on these

imported seeds often result in low crop productivity. Smallholder farmers are also facing problems in farming due to climate change. Water sources have started drying up and unpredictable monsoons and floods have started to affect crop production. Due to these issues, and limited income from farming, migration is high amongst men. This has resulted in a lack of agricultural labour in the area, and increased the burden on women farmers.

In response to these issues, ActionAid Nepal formed three women farmers' groups in their local rights programmes in Udaypur district. The objective of these groups was to promote sustainable agriculture in the region and to replace the use of chemicals in farming. The groups were registered with the District Agriculture Development Office (DADO) in 2013 and 2014. This enabled them to access services from DADO, which would have been difficult for individual farmers. DADO has provided the farmers' groups with seeds, as well as material support with irrigation.

Each member of the farmers' group contributes money to a collective savings scheme. The Village Development Committee also provided budgetary support to the

community for training sessions on organic farming techniques. Reflection-Action circles¹ were also set up so that farmers could discuss and come up with solutions to their issues. ActionAid provided training on the importance of soil organic matter, on the impacts of pesticides on environment and health, and on the need to reduce the dependency on external inputs.

Following this training, the groups came up with the alternative of promoting compost and the improved use of manure, which prevents nutrients being lost from the soil. The farmers decided that every member of the group should have a compost pit at their home. ActionAid Nepal therefore developed a collective farming practice named 'One House, One Compost Pit' and the campaign was launched at local level in Udaypur.

ActionAid and farmers worked together on the preparation and application of organic compost. Compost is prepared in pits by combining plant residues, bedding materials and manure, with effective microorganisms that enhance decomposition of the composting materials. The collectives also started using animal urine and other organic pesticides as an alternative to chemicals.

The beneficial effects of these compost pits have been noted in the community, and other farmers have started to adopt this practice. Several farmers have also invested in the combination of crop production and animal rearing, as a way to increase livelihood options and economic alternatives. They rear chickens and goats for meat and manure, cows for milk, oxen for manure and ploughing the fields, and buffalos for milk and manure. These animals provide a source of income from meat and milk. Their manure also saves money that would be spent on chemical fertilisers and is a major source of plant and soil nutrients. The farmers also practice mixed cropping, an alternative that may improve farmers' resilience to climate change. In order to address the problems with irrigation, farmers in this region have started to use water harvest tanks, drip irrigation and drought-resistant crop varieties.

Over time, through the use of these sustainable farming techniques, smallholder farmers from Udaypur have been able to improve their productivity and the quality of their produce. The use of compost has improved soil structure and fertility. They have also reduced their dependency on expensive chemical fertilisers. The sustainable practices have significantly reduced farmers' production costs, meaning that the women are able to invest more in healthcare and education for their children. Moreover, the reduction in the use of chemical fertiliser and pesticides has had a significant impact on the health of women farmers, and provided them with a safe working environment. This has also had a positive impact on the health of their families, through consuming chemical-free food.

Groups have also been able to use the cooperative

savings scheme for a loan to invest in extra income generating activities. Additionally, the process of organisation of farmers into cooperatives and local groups has improved the solidarity of the community. ActionAid's capacity-building on sustainable agricultural alternatives and raising awareness on the responsibility of relevant government institutions has contributed to the empowerment of smallholder farmers. The groups have managed to build a relationship with the local agricultural offices like DADO and the Agriculture Service Centres, allowing farmers to obtain seeds for their farming.

In order to expand sustainable agriculture practices in this area, farmers still require additional technical support. Far more lobbying and advocacy activities are needed to ensure that the Government provides assistance to smallholder farmers in sustainable agriculture. Looking to the future, the communities are not located far from the market place, which offers the potential to increase their income through selling their products. There are also opportunities to work with different agricultural organisations in the area to share their learnings, and obtain technical and input support for the group.

The women of Udaypur describe the success they have had through using the new agroecological techniques: *"Soil has become easier to work with and I am convinced that crops are less infested by insects since I started using compost"* says Ganga Devi Chaudhary, chairperson of Ramkrishna farmers' group.

Bindeswori Chaudhary, a smallholder farmer from Udaypur region, says: *"Use of compost has saved my expenditure on fertiliser purchase. Furthermore, I have also learnt to protect my crops from pests by using the locally available plants."*

Another smallholder farmer, Ramsunair Chaudhary says: *"I had applied compost in Okra (Lady's finger) crop. I did not have to buy chemical fertiliser and saved money. I have also observed improved soil quality after applying compost."*

This is an example of how the use of agroecology and collective farming can result in improved livelihoods. The adoption of the 'One House, One Compost Pit' campaign has reduced farmers' expenses as well as improving soil structure and fertility. Through the adoption of this sustainable practice, families in Udaypur have become healthier through the consumption of safer, quality food, based on safer farming practices. Women smallholder farmers are now more confident to ask for support from the Government. Much more needs to be done, however, to ensure that these women's groups receive adequate government extension services in sustainable agriculture.

¹ ActionAid's participatory group methodology, based on the process of building empowering spaces to reflect on key community issues and identify collective actions to resolve them

CASE STUDY 8: Nicaragua

Sowing the seeds of hope for change

Bramadero is a rural community located in Jinotega, Nicaragua. The main agricultural crops are maize and beans. Formerly women would stay at home and take care of the house while the men of the community would support their families through agriculture. Recent changes in the climate have resulted in an increase in droughts and floods in this region. This has led to a decline in crop yields, meaning that it is hard for farmers to make sufficient livelihoods from farming.

Santos Gladys Rizo Zelaya is a 44-year-old mother of five living with her partner in Bramadero community. Gladys and her family live in a mud house, with limited access to drinking water. Their main income comes from farming, but previously Gladys would work in her house carrying out domestic work full time.

Farmers used to face many challenges in practising agriculture in Bramadero. One effect of climate change was a dramatic decrease in crop yields through drought or excess rain. Conventional farming methods also led to soil erosion and a decrease in soil fertility. Additionally, smallholder farmers faced issues with the high cost of seeds and agricultural inputs. Women in this region were also engaged in domestic work with little or no recognition for their labour, and no financial compensation to support their families.

In 2011, an EU-funded project was implemented through ActionAid Nicaragua and the Nicaraguan Institute for Agriculture Technology INTA, a government institution, to promote women's empowerment and native seed production through women's agricultural cooperatives. The cooperative in Gladys' village was named 'El Bramadero'. It aimed to promote the use of sustainable agriculture and the production of local seed varieties in this community. Gladys is a women leader in El Bramadero. With the support of neighbouring communities, farmers in this region started work to improve agricultural practices. They started using native seeds, as farmers know that they have greater resilience, adaptation and require fewer farming inputs than conventional seeds. To date, 640 women in 19 communities have been organised as entrepreneur producers.

In 2012, seedbanks were set up in the communities, including Bramadero. Women farmers were trained in sustainable agriculture and were provided with equipment to start the new production methods and to manage the



Santos Gladys Rizo Zelaya, woman leader, Bramadero PHOTO: ActionAid Nicaragua

seedbanks. Training also took place on biodiversity, nutrition, and agroecological management.

The smallholder farmers then started producing native seeds on their family plots. The sustainable practices used as part of this initiative also included the use of bio-pesticides, bio-fertilisers, and the planting of beans and corn grains using sticks, to minimise soil disturbance. The community diversified their crops, and reduced the use of burning of the soil. The cooperatives also advocated for sustainable agriculture policies to improve local food security, with an emphasis on the protection of native seeds and local genetic biodiversity.

Following the move to agroecology, the community is achieving higher productivity on their farms. There is now a greater availability of better quality food - including banana, cassava, maize and beans - which improved the food security in the communities. The production of native seeds has ensured timely supplies of good quality, resilient seeds and reduced their costs.

Women are now making decisions on the production of food and are sharing their learning and experiences with others. Overall, the women have better incomes to contribute to their family budgets. They also have greater resources to invest in small scale sustainable agriculture. Women manage these resources and make decisions on how they are spent. They also have more time to take part in income generating activities and are helping to ensure food security for their families and community.

As a community leader and producer, today Gladys is engaged in many projects that represent development in

Local corn variety
PHOTO: ActionAid Nicaragua



her community. She has the ability and skills to motivate other women to practice sustainable agriculture. Gladys has also been responsible for leveraging additional resources for this project through her management and efficient administration.

The communities have received some support from local government institutions in practising agroecology in the form of seeds, resources for production, and technical support from INTA. The community are keen to retain this technical assistance service to produce “certified” high quality native seeds with the ability to adapt to conditions related to climate change. They also need training on the effects of climate change, and the impact of these on their productive resources, and training on the control of pests. The community therefore request financial support from the Government to upscale this agroecology initiative.

Going forward, the community would like to expand the area where native seeds are grown to ensure food security in their community. They also want to start selling them to other communities, to increase their income. The community are planning to continue the process of diversification of their crops. They want to use alternative technology to protect the rivers and water sources, and to use techniques that prevent soil erosion. They are also keen to establish linkages with other initiatives with a similar focus to ensure the sustainability of these practices, and to increase the visibility of women as producers and entrepreneurs of native seeds at a national level.

According to Gladys, her life has changed for the better since her involvement in this project in 2012, and is continuing to change for her and other farmers in the region. It has allowed the women to make a positive contribution to

the local and family economy, and gain more recognition for their unpaid care work. Aside from the financial benefits, taking part in the training has meant that Gladys and the women in her community now have improved technical skills and capability in land management, and have been empowered in their rights as women.

Gladys says: *“Since 2013 I’m confident woman with my work, because my previous concern was to learn more and the training I’ve had regarding the handling of cultivated land have helped me not only for my harvest, but also to share with the rest of women.”*

The women in Gladys’ community expect to put into practice this new knowledge in 2014, when they will harvest the crops, sell their produce and improve the income for their families, and to ensure the 2015 harvest.

Gladys talks about the impact this project has had on the women of Bramadero: *“I could not do it only by myself. Here in the village, all the women have the power to change things. We will sow the seeds and have some income. The women have helped me do it. I have shared with them the knowledge and I know they will support me.”*



Women farmers, Jinotega
PHOTO: ActionAid Nicaragua

CASE STUDY 9: Pakistan

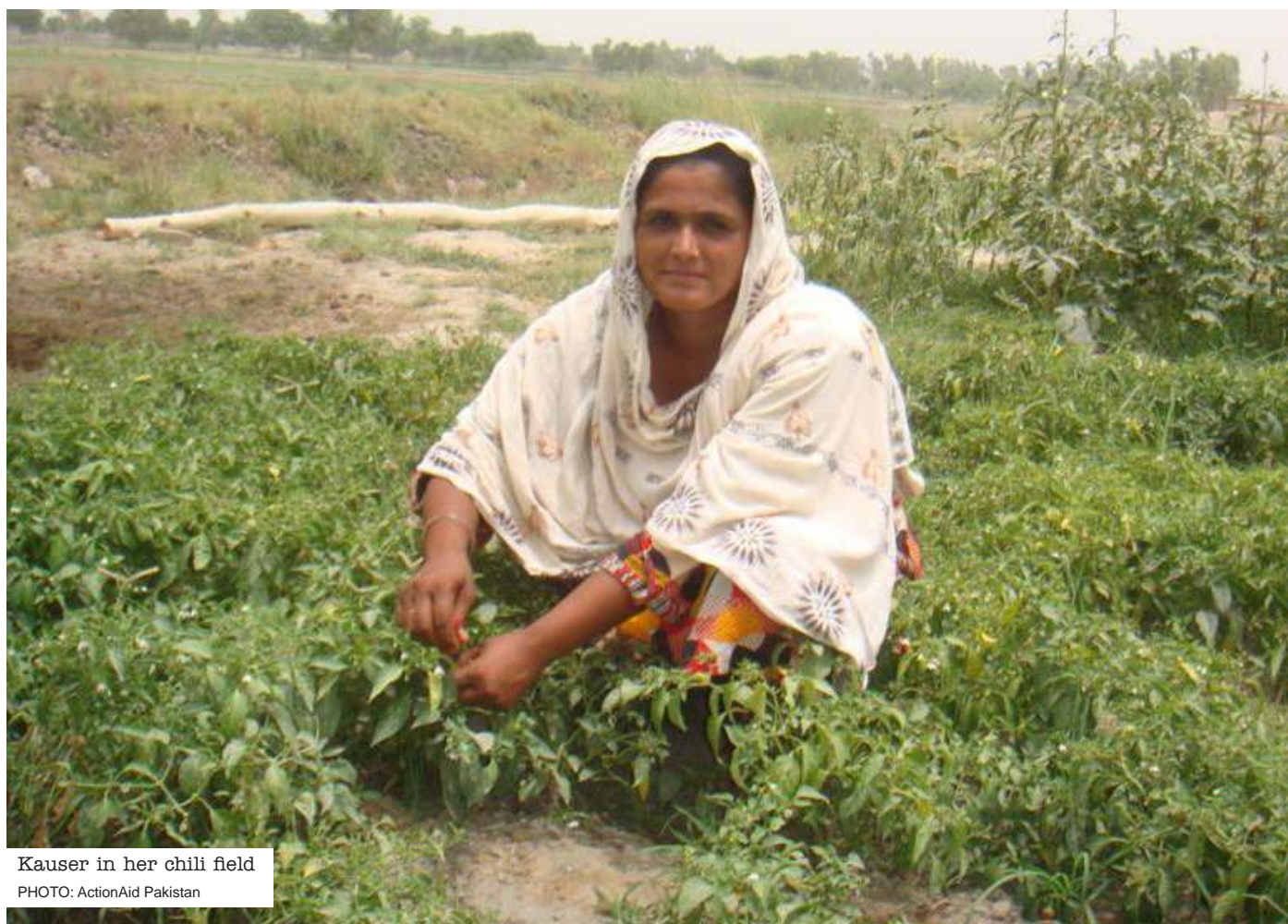
Women's collective enables community to ensure food security

Kot Adu is a flood-prone area of Punjab in Pakistan where farming is a major source of income. The area has twice been hit with disastrous floods in the last four years, which has had a very serious impact on the lives of smallholder farmers, particularly women. In Pakistan, women make up about 60% of farm labour, but fail to benefit from a farming system which doesn't recognise their labour and doesn't allow them to ensure food security for their families. The floods in Kot Adu in 2010 washed away the stored grain, leading to a rise in malnutrition in children. The land erosion also deprived many women farmers of their meagre land.

Kauser Parveen is a 30-year-old mother of four from Babarwala village in Kot Adu. Kauser is a smallholder farmer and a member of Teraimet Sanjh, a women's collective that is working for the rights of women farmers. The aim of this collective is to support the women to ensure food security, and help them in their struggle for land rights, quality seeds and affordable agricultural inputs.

Poor farmers across Pakistan, particularly in flood-prone areas like Kot Adu, have to bear a huge cost in practising conventional farming, which means they are often unable to earn a decent living from agriculture. The introduction of hybrid seeds and the use of chemicals, such as synthesised fertilisers and pesticides, have made farmers very dependent on external inputs. Farmers are also required to buy them from markets at high prices and interest rates, which makes it difficult for smallholders to obtain a fair return for their production. The emphasis on monocropping (the agricultural practice of growing a single crop in a field) also leaves little space for the communities to cope with disasters and the effects of climate change.

ActionAid Pakistan and local partner Hirrak Development Centre (HDC) have been working closely with poor women farmers of this area to introduce climate resilient sustainable agriculture practices, by leasing land for collective farming.



Kauser in her chili field
PHOTO: ActionAid Pakistan

Following the 2010 floods, a need to move away from conventional farming methods and towards diverse livelihood options was identified. Teraimet Sanjh collective realised that farmers needed a way to reduce the cost of farming inputs, to obtain fair market prices, and to capitalise on local agricultural knowledge. A decision was made to reintroduce local seed varieties that were adaptive to climate change patterns. Initially, six women farmers -including Kauser - volunteered their services to become role models for other women farmers.

Teraimet Sanjh provided the women with capacity-building training and exposure visits to learn methods of climate resilient sustainable agriculture. The visits showed the women farmers the benefits of using local seeds and other viable sustainable alternatives. Following this, they rented 1.5 acres of land and started farming with their choice of crops. They decided to grow Till (sesame), wheat and vegetables using local seeds instead of hybrids. They also mixed animal manure with the soil as an effective alternative to synthetic fertilisers.

Community seedbanks were created and promoted through this initiative - to ensure the timely availability of quality seeds when prices rise in the market.

Collective marketing was carried out using participatory approaches that engage women farmers. The community is also developing their own sustainable fertiliser (composting) to use on their land and to sell at local markets. Since 2009, Teraimet Sanjh has formed two seedbank collectives for wheat, eight livestock cooperatives, four boat collectives for fisherwomen, and six leased land collectives for women in Kot Adu.

These new farming methods signalled the beginning of happier days in the lives of these women farmers, and



Kauser Parveen on her farm PHOTO: ActionAid Pakistan

have helped them to cope with the challenges of climate change. They found that the local varieties of seeds were more economical and resilient. Additionally, the new farming methods have improved the focus on land fertility, reducing input costs and dependency on markets, and resulted in better crop yields.

The transition to sustainable agriculture has not been without its challenges, however. Women farmers



Kauser with her healthy crops PHOTO: ActionAid Pakistan

engaged in collective farming faced issues such as a lack of basic machinery, technical capacity and skills, and building relationships with government departments and bigger, regional markets to sell their produce. As many people have been inspired by the success of this initiative, there is also a shortage of local seeds in the market.

The communities of Kot Adu have so far received no support from local government institutions in the practising of agroecology. However, since this project has been in place, more and more people from the community and outside have become part of this initiative and started using local seeds and organic fertilisers. In order to continue and fully implement these initiatives, the community require support from the Government in the form of technical training on marketing techniques, local seeds production, the storage and conservation of seeds, how to check seed quality, and how to produce the organic fertiliser. Exposure visits are needed to share knowledge and skills between communities, and the Government needs to put these into place in order to promote and extend these sustainable agriculture techniques.

The women of this area took a leap forward to ensure their economic independence and growth through these initiatives. They have had a tremendous impact on the



Kauser with her livestock
PHOTO: ActionAid Pakistan



Formation of local
fertiliser using manure
PHOTO: ActionAid Pakistan

lives of smallholder farmers such as Kauser, and the initiative produced the desired results of reducing input costs and improving the per acre yield for the farmers.

Since this group of women took the lead, many other smallholder farmers - including men - have been inspired to adopt sustainable agriculture practices to break the credit-market cycle. Climate resilient sustainable agriculture practices can bring huge benefits to disaster-prone areas, and the resounding success of this initiative has led women farmers to continue promoting these practices.

Above all, Kauser and other women farmers have started earning a decent living from their hard work and become economically empowered, so they are now able to provide food security and improved health for their families.

Kauser says: "I am thankful to ActionAid and Hirrak for their continuous support to women of my locality, which was hit twice by disastrous floods. I used to assist my husband in the field. Due to floods destruction, we lost capacity and credibility to get agriculture inputs on credit.

We were passing through a difficult phase of life when ActionAid provided us the most essential support of finding means to ensure our economic empowerment. Six women including me decided to lease 1.5 acres of land and start cultivating it with a different approach and methodology.

I am happy to share with reader of my story that we succeeded in achieving our target of economic independence with a remarkable output of our hard labour with an effective use of non-conventional methodology of farming. All of us not merely earned profit from crop yield, but also saved money required to lease the same land for the next year."

CASE STUDY 10: **Rwanda**

Sustainable livelihoods project supports women to reduce unpaid care work

Kibirizi Sector is a rural area located in Gisagara District, in the Southern Province of Rwanda. The area has very limited land for farming and suffers from irregular rainfall and prolonged droughts. These climactic conditions affect crop yields, leading to food insecurity and malnutrition - particularly for women and children.

Leoncie Niyonsenga is a 40-year-old mother of six children from Mbeho village in Kibirizi Sector. Leoncie's major occupation is farming, but prior to the intervention of this project she spent almost of her time caring for her six children, which prevented her from engaging in activities to improve her family's livelihood.

The main problems faced by Leoncie and women smallholders in her community were the limited access to resources (such as firewood and water supplies), an increase in crop diseases and pests, a lack of irrigation systems and absence of food and grain storage systems. The use of chemical inputs - such as fertilisers and

pesticides - are also common in this area, which are costly and may affect the environment, the soil structure and food quality.

Traditional patriarchal structures in Rwanda implies that household activities - such as cooking, sewing, collecting firewood and water, and childcare - are solely carried out by women. This work is often not visible, so is not recognised or redistributed at family, community and national levels. In Kibirizi Sector, the lack of childcare centres prevented women from taking part in productive farming and other income-generating, political and social activities. Women from female-headed households were therefore forced to lead a solitary life, with difficulties in obtaining enough and nutritious food.

Abishyizehamwe is a women smallholder farmers' group that was formed in March 2013 to mobilise community women for the promotion of sustainable agriculture practices. The group was formed under the ActionAid



Niyonsenga Leoncie with her child at the childcare center

PHOTO: ActionAid Rwanda

FLOW Project, which aims to reduce the time women farmers spend on unpaid care work through low-cost interventions, such as community-run childcare centres. The cooperative started with thirty members, including HIV-positive women and women heading their families – most of whom lost their husbands during the 1994 genocide.

Leoncie has been a member of Abishyizehamwe since its inception in 2013. In order to address the childcare issues, the project opened an Early Childhood Development (ECD) Centre to enable women to have more time to take part in income generating activities, and improve their families' livelihoods. Women smallholders also take part in Reflection-Action¹ circles on a regular basis to discuss and find solutions for their problems. Additionally, the women make a monthly contribution to a cooperative bank account for their collective farming work.

The cooperative promotes sustainable agriculture as a way to enhance agricultural production, and to increase the adaptation and preparedness of women smallholders' production systems to climate change. Community seedbanks have been set up to store indigenous seeds, which have solved the problem of exploitation of market forces and seed shortages during the planting season. Farmers like Leoncie no longer rely on market seeds, which are expensive, and usually do not perform well in their local conditions.

Domestic animals, provided by FLOW Project, have been introduced into their farming to provide milk and manure. This manure is used to make compost, which improves soil fertility and reduces money spent on chemical fertilisers. The women have planted trees in their fields' contours, which helps to improve the soil quality and control erosion, and re-forestation of the sloping areas. Multi-purpose leguminous trees have been introduced to feed both the soil and the domestic animals. Farmers are also using crop mulching to protect the soil and retain soil moisture. The women have been harvesting rainwater to ensure water supplies for the dry season. Other sustainable farming methods being used include agroforestry, small-scale irrigation and mechanisation, kitchen gardens, drought-resistant crops, and progressive terracing.

The women have faced some issues in practising sustainable agriculture techniques. The move towards practising sustainable agriculture required a huge change of mind-set – as the Government continues to promote conventional agriculture techniques. Additionally, the women smallholders have had to find new ways to manage diseases and pests. They have also faced issues with food storage,

and lack of enough water to support small-scale irrigation in a context of climate change. There is also limited land available in this region to allow the women's cooperatives to expand their agricultural production areas.

Furthermore, in Rwanda gaps still exist between men and women in terms of unpaid care work – as this is still viewed as a woman's role. Results from the FLOW Project have shown that men's attitudes are slowly changing through training and sensitisation. The Government is promoting gender equality and equity, but rural women still face cultural challenges that limit their access to formal education and other economic opportunities.

The communities in Kibirizi have received support from government programmes such as 'One cow per one poor family', promotion of agroforestry, lakes and river protection by the Rwanda Environment Management Agency and two community seedbanks. However, the community requires more support with supplies of organic fertilisers and energy-saving stoves, additional seedbanks, agroforestry practices, irrigation systems, and more childcare centres in order to continue practising sustainable agriculture effectively. In order to maintain enough organic manure for use as fertiliser, the community also requires support with the purchase of domestic animals and training on compost-making. Training on rainwater harvesting and preparedness techniques in order to deal with the effects of climate change is also essential.



Niyonsenga Leoncie on her farmland PHOTO: Celso Marcatto / ActionAid

¹ ActionAid's participatory group methodology, based on the process of building empowering spaces to reflect on key community issues and identify collective actions to resolve them

The beneficial effects of practising agroecology in this region are clear, however. The use of organic fertilisers has helped to restore the soil, and helped to protect the rivers and lakes in the area. The ECD centre enables women smallholder farmers to allocate more time to farming and other household responsibilities. They have time to take their produce to market – which was previously difficult due to unpaid care work responsibilities. The women now have timely access to manure and seedbanks and have started farming organically.

Through sharing labour and local knowledge their collective productivity has increased. Through diversifying their crops, the women have been able to improve nutrition and food security in their communities. The savings scheme has supported the women to purchase public health insurance, and to pay for education for their children. The women are also able to enjoy social events, and have grown in confidence through attending the Reflection-Action circles, which have enabled them to share their problems and work together to find solutions. Joining together as a collective also means that advocacy and campaigning is now possible – so these women can continue to improve their livelihoods and the situation in their community. The project has also improved the confidence of women within the community, as their roles and work are now more visible.

Leoncie says: *“After the 1994 genocide, my husband was taken to jail and I was left with six children but recently he came back home. Caring for the family was a huge burden. We were living in a very high risk zone and the Government forced us to leave the area. I am living in unfinished house because we are now unable to finish it. I am rearing a cow of my neighbour just for manure access.*

My land is very little; I am renting a plot of land in which I produce beans and Irish potatoes when the Government does not force us to grow corn. I just use organic manure because chemicals are very expensive. However, we use some chemicals in our collective vegetable production in swampy area.

I get vegetables from group and we store seeds in our seedbank. I do not have a problem with seeds anymore. Since I brought my son to the childcare centre I go for farming from 7am to 12am without child interruption. Before the ECD centre I could not even go to cultivate due to not leaving my kid alone at home because his young brothers and sisters had gone to school. But now, I do all my activities without any interruption. I really thank the project to have grouped us and supported with seeds and ECD.”



Niyonsenga Leoncie at her home PHOTO: Celso Marcatto / ActionAid

Recommendations

These case studies, while highlighting the successes, also refer to the challenges farmers face in practising agroecology. Governments in some cases have played an important role in supporting communities. A summary of this support follows:

In **Rwanda**, the Government support for communities in Kibirizi has promoted agroecological practices. The support came in the form of programmes such as ‘One cow per poor family’; promotion of agroforestry; lakes and river protection by the Rwanda Environment Management Agency; and two community seedbanks. In **China**, government authorities have appreciated and are replicating the success of the Sanilu village initiative in other villages. The Government also allocated funds to scale up the practices of agroecology.

The **Bangladesh** case study highlights some support from government institutions in practising agroecology, including soil fertility testing and appropriate seeds; roadside plantation for income generation; poultry and cattle vaccinations; and pond re-excavation and ring-well installation. In **Nicaragua**, the government institution Nicaraguan Institute for Agriculture Technology (INTA) worked with ActionAid to provide technical support in practising agroecology in the form of seeds and resources for production.

However, farming communities need far more structural changes in governments’ policies, practices and budgets to upscale this alternate agriculture model. The following recommendations are based on farmers’ demands coming out of the document. International organisations like FAO, IFAD should support governments to deliver them.

Governments should prioritise changes in public research systems to ensure:

- A major focus on developing solutions for the technical and socio-economic problems faced by farming communities in practising agroecological farming;
- That scientists respect and integrate the sustainable farming methods developed by farmers and define their research priorities with farming communities, disaggregating priorities of male and female farmers.

Governments should re-orient extension services to support smallholder farmers in promoting sustainable agriculture, in order to maximise their food security and food production in a climate change context:

- Governments should increase spending on extension in sustainable agriculture, including training for extension staff and increased outreach for farmers;
- More women extension officers should be inducted, to facilitate women farmers’ transition process to sustainable agriculture and their adaptation to climate change;
- The extension services need to facilitate the process of building bridges between local and scientific knowledge, to promote site-specific, tailor-made sustainable production systems;



Stone dam for rainwater catchment, Brazil
PHOTO: Celso Marcatto / ActionAid

- The extension staff should also be trained in participatory approaches to identify local potentials and challenges, and encourage local innovation.

Governments should step up support for improved water management and incentive practices, such as:

- Water catchment systems and rainwater harvesting at the community level (e.g. small dams, brick tanks, rock cisterns and other types of reservoir);
- On-farm water preservation systems (e.g. roof catchment / guttering, water wells, boreholes and underground dams);
- Small and low-cost irrigation systems (e.g. drip / micro irrigation);
- Local water harvesting, such as community and on-farm small dams, cisterns to collect water from roofs, underground dams, among many others.

Governments should increase their support to farmers' initiatives of processing and access to market, by:

- Investing in capacity-building processes aimed at enhancing smallholder farmers' processing, business management and marketing skills;
- Building up women smallholders' confidence by helping them to gain new skills in marketing, business management and advocacy;
- Explore other possible markets, like public procurement and institutional markets;
- Investing in local infrastructure for transport and storage facilities;
- Facilitating value addition and marketing of both food and non-food products from smallholder farmers, and promoting fair access to markets for all, as a way to ensure that smallholder farmers are not exploited in the value chain.

Governments should also ensure communities' access to and control over productive resources and basic services for practising and scaling up agroecology:

- Land titles for women farmers, particularly by implementing Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the context of National Food Security;
- National seed laws should respect and protect farmers' rights to develop, save and exchange local seeds, preserve the local varieties, facilitate the access of farmers to quality seeds, and reduce risks of local seeds and local plants losses in the context of climate change;
- Initiate programmes for technical support to establish community seed and grain banks, biomass, fodder, and storage facilities at local level;
- Investment in childcare centres at village level to help reduce unpaid care work for women farmers;
- Provide low interest and long payback credit programmes for smallholder women and men farmers, to support the transition to sustainable agriculture. For example: for the use of inputs and methods that have already proved their efficiency on climate change adaptation; to help farmers access other local, non-fossil organic agricultural inputs; and to help them invest in marketing and processing.



Underground dam in the
semi-arid region of Brazil
PHOTO: Celso Marcatto / ActionAid

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