

May 14, 2021

Breaking down resilience silos



Katie Niemeyer

All blogs

Strengthening market, farm and household resilience through climate smart agriculture

Climate Adaptation and Conservation in Market Systems as a key theme at this year's [Market Systems Symposium](#) presents a unique opportunity for us as market systems development practitioners to think more dynamically about the concept of resilience. At Land O'Lakes Venture37, we are exploring how market-driven climate smart agriculture can strengthen farm-household systems, and how that relates to market systems resilience.

A farm system is the way in which farm resources are used and tailored to the physical, biological, and socioeconomic realities of local agro-ecological contexts. A farm-household system also incorporates individual household needs and desires that drive decision making. Climate smart and conservation agriculture provide an opportunity to strengthen the resilience of the whole farm-household system. However, to achieve this at scale market systems resilience must also be strengthened to enable systemic change in the way farmers produce.

Connecting the dots: market, farm and household resilience through climate adaptation

Now, some ground setting on climate smart and conservation agriculture. Climate smart agriculture (CSA) is an integrated approach to farming that aims to increase productivity and incomes in a way that enables adaptation and builds resilience to climate change while reducing emissions. Conservation agriculture is a subset of CSA. It incorporates the tenets of minimum tillage, soil cover, and greater plant diversity through crop rotation or intercropping. Taking a farm-household system

view, Land O'Lakes Venture37 works with the private sector and other local partners that have the ability to enable resilient agriculture – they use CSA (including conservation) technologies that drive farm, household and market system resilience.

Now that I've satiated all of the aggies out there, let's turn to the development theorists.

A quick refresh on USAID's Resilience Frameworks

USAID defines resilience as the ability of people, households, communities, countries, and systems to mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth.

This definition of resilience is demonstrated through a set of absorptive, adaptive, and **transformative capacities** that enable continued progress toward improved outcomes despite shocks and stresses.

- Absorptive Capacity: ability to use preventative measures and coping strategies
- Adaptive Capacity: ability to proactively adapt livelihood strategies based on changing conditions
- Transformative Capacity: the strength and effectiveness of an enabling environment that supports systemic change

USAID's Market Systems Resilience framework views these capacities through the lens of **proactive** versus **reactive market systems orientations**. While a market system with a proactive orientation has the ability to absorb, adapt, and transform in response to shocks or stresses, reactive orientations leave the market system unable to transform due to limited diversity and unbalanced power, which contributes to system stagnancy or fragile functional states.

We can use this resilience framework to think about a resilient farm-household system. In conventional land-based agriculture, the soil is a good place to start. **Evidence shows** that resilient (conservation) agriculture practices build healthier soils that strengthen *farm-household system* **absorptive capacity** by helping crops withstand severe weather events. Accumulation of soil organic matter improves soil structure and aggregate stability, while also actively sequestering carbon and mitigating the effects of climate change. Resilient agriculture also enables the **adaptive capacity** of the *farm-household system* by maintaining or improving soil fertility, bulk density, water holding capacity and infiltration so that the soil can support different types of crops without the need to incorporate expensive inputs into the cropping schedule.

Resilient agriculture also contributes to resilience of the 'household' in the *farm-household system* by diversifying production and strengthening **absorptive** and

adaptive capacities. For example, if a *farm-household system* incorporates cover and/or intercropping of legumes, the resilience outcome is four-fold:

- › Soils are healthier so households reap the productivity benefits from the investment in improved seeds
- › Intercropped legumes contribute to integrated pest management, reducing crop protection costs
- › Mixed and sequenced crop production diversifies income streams
- › Households have greater access to more diverse and nutritious food options.

But how can we scale adoption of resilient agriculture?

This brings us to the critical role that market systems resilience plays in enabling the **transformative capacity** of the *farm-household system*. Agricultural support networks must be able to provide the tailored innovations, technologies and advisory services that are needed to support resilient agriculture. But this should be viewed as an opportunity to catalyse investment that facilitates greater market system diversity and connectivity and foster a more **proactive market system orientation**. And as more farm households adopt resilient agriculture and are able to withstand and thrive through climate shocks and stresses, other market actors ranging from input supply companies, agrodealers, service providers, and offtakers benefit from the mutually-reinforcing effects of more consistent supply and demand.

You might be thinking – that’s great in theory, but given that resilient and conservation agriculture often promote low-input systems and require time before productivity benefits can be realised – where are the market incentives for adoption, replication, and scale?

Let’s look at a case study from Mozambique demonstrating market incentives for resilient agriculture

Mozambique is highly vulnerable to climate change. While Cyclones Idai, Kenneth, and Eloise caught international headlines, increasingly erratic rainfall, reduced growing seasons (**by up to two days/year**), and soil degradation continue to intensify as the primary drivers of vulnerability.

Climate-adapted hybrid seed varieties alone cannot be a panacea for the Mozambique agriculture sector because degraded soils limit the ability of *farm-household systems* to achieve the full production potential of hybrid seeds in order to receive a return on investment. And, despite millions of dollars of donor funding, the formal seed market remains relatively small. A recent seed system survey conducted by Venture37 on the Feed the Future Resilient Agricultural Markets

Activity – Beria Corridor ([RAMA-BC](#)) suggests that only 6 per cent of seed is sourced from agrodealers, compared to 78 per cent of community sourced seed.

Some input supply market actors are realizing that to capture the smallholder farmer markets in Mozambique, they need different solutions and are starting to respond to the market incentives of resilient agriculture.

RAMA-BC partners with input supply networks (seed companies and agrodealers) throughout northern Mozambique to pilot and scale input product innovations and embedded services that support resilient agriculture, particularly in climate smart maize production systems.

One of those partnerships is with Phoenix Seeds, an independent first-mover seed company in the space of cover crop and intercropping input products that, even before the RAMA-BC partnership, had started introducing lablab and sunhemp legumes into the local market.

Phoenix Seeds and Venture37 have partnered to successfully test the use of jackbean as a cover crop (which Phoenix has independently scaled to commercial seed production), pilot promotional seed kits that bundle drought-tolerant maize seed with complementary legume cover crop seeds, test the efficacy of using legume intercrops to control fall armyworm through integrated pest management (IPM), and demonstrate resilient agriculture practices and the resultant productivity gains through demonstration plots in partnership with local agrodealers and commercially-oriented lead farmers.

In December 2020, Venture37 launched a three-part blog series on Private Sector Engagement in Mozambique. Take a look at [Part Two](#) for a taste of what RAMA-BC Chief of Party, Nic Dexter, will be sharing during the Climate Plenary and Deep Dive Cafes at the [Market Systems Symposium](#) on input supply networks and resilience in northern Mozambique.

What was the Impact on Resilience?

- At the **firm level**, Phoenix Seeds sold more than 1,000 intercropping seed kits (with plans to scale) and invested in two new lines of cover crop seed, demonstrating enhanced investment behaviours and evidence-based decision making.
- At the **market system level**, market agents (seed companies, agrodealers, farmers) have achieved greater connectivity and business model, product, service, and distribution channel diversity due to resilient agriculture product innovations and demonstration plot partnerships. There were also new market

entrants, such as women's savings groups that launched village-based input supply ventures.

- At the **farm-household system level**, maize yield increased by 71 per cent due to improved soil fertility and health, fall armyworm prevalence decreased by up to 49 per cent, and production diversified with integrated legumes and small livestock. This created diversified on-farm income streams and household diets, with greater access to nutritious food (pigeon pea and lablab beans) later in the season when food was scarce.

As we enter the exciting time of sharing, learning, and creating together at this year's Symposium, I challenge us all to step out of our 'resilience silos' and draw connections between private sector-led approaches that achieve market system, farm system, and *farm-household system* resilience outcomes.

This blog was originally posted on [MSD Hub](#), as part of the [Market Systems Symposium 2021](#) blog series.