COLLABORATE • LEARN • ADAPT

CASE COMPETITION

Collaborating, learning, and adapting (CLA) have long been a part of USAID's work. USAID staff and implementing partners have always sought ways to better understand the development process and USAID's contribution to it, to collaborate in order to speed and deepen results, to share the successes and lessons of USAID's initiatives, and to institute improvements to programs and operations. Through this case competition, USAID and its LEARN mechanism seek to capture and share the stories of those efforts. To learn more about the CLA Case Competition, visit the USAID Learning Lab at usaidlearninglab.org/cla-case-competition.

Embracing CLA to Drive Technology Adoption in Kenya: AflaSTOP's Experience

Anna Garloch, ACDI/VOCA

What is the general context in which the story takes place?

Even our own staff member was shocked when she got the results.

As an employee of an agricultural development organization, Edith was proud of her ability to fully apply good agricultural practices to the maize she grew at home in eastern Kenya, and she was certain her maize would be aflatoxin-free.

Instead, she learned the maize she was feeding her own family with was highly contaminated — far above the acceptable limit for Kenya. Unfortunately, Edith was not alone: roughly 75 percent of grain tested by AflaSTOP had unsafe levels of aflatoxin at harvest (more than 10 parts per billion); in one area, 69 percent had levels exceeding 100 parts per billion. Worse, as AflaSTOP's research proved, the contamination rate would grow *significantly* during the traditional grain storage period. In one area, contamination grew an average of 92 percent *each month*.

To address this pervasive problem, USAID and the Bill & Melinda Gates Foundation partnered to co-fund the Storage and Drying for Aflatoxin Prevention project. Known as AflaSTOP, the project is identifying the most promising storage options for smallholders to arrest the growth of aflatoxin and designing viable drying technologies that allow grain to dry to safe storage levels. The project works to ensure that businesses operating in Africa are able to provide these devices to farmers. Jointly implemented by ACDI/VOCA and Agribusiness Systems International, under the direction of Meridian Institute, AflaSTOP collaborates with researchers, appropriate-technology engineers, formal and informal manufacturers, and government bodies such as the Ministry of Agriculture, supporting the objectives of the Partnership for Aflatoxin Control in Africa.

What was the main challenge/opportunity you were addressing with this CLA approach or activity?

From the outset, AflaSTOP had an ambitious vision: widespread farmer adoption of technologies that affect aflatoxin development. The storage and drying technologies each have unique, though related,

challenges. This case study focuses on the drying component and how a CLA approach is helping us overcome these challenges.

To realize our vision, AflaSTOP must successfully design a new technology, then transfer it to the commercial sector and facilitate going-to-market and scale-up — all within a few years and with very limited market-distorting subsidies. The project's leadership saw CLA as central from the beginning: without it, we might succeed at one phase — designing a great dryer, for example — but fail at the long-term goal.

There were two main challenges AflaSTOP hopes our attention to CLA will address:

- *Stove-piping:* AflaSTOP is investigating global issues being addressed by a diverse set of global and local stakeholders; if we fail to *collaborate* we risk stove-piping, repeating what has been tried before or not learning from new approaches. The technology development process takes years, and we knew we had to collaborate actively at every stage of the project. It is particularly important to collaborate with local partners to ensure that technology is suitable for the areas where it will be deployed. Such collaboration is a constant challenge, but one that the project's strong communication component, described below, is designed in part to address.

- *"Stunted scale":* A related yet separate challenge is one of *learning and adaptation*: if we fail at those things, the chance that the drying technology will actually be scaled up independently beyond those we directly "touch" is greatly diminished. For example, if we had not carved out time for hands-on feedback sessions with informal artisans — potential manufacturers of the dryer — we would not have learned about the practicalities of how they re-engineer technologies (by sight) and how our own approach to stimulating adoption would need to adapt accordingly. We also had to carefully design a pilot testing phase with maize shellers — the ultimate service providers of the dryers to farmers — to get the information we needed on prices, mobility, and functionality, which are the keys to getting large numbers of shellers up-taking the technology as a viable business.

In the broader marketplace, there were "known" and "unknown" challenges. The *known* market problem was the inability to dry the maize sufficiently. This is widely acknowledged by farmers, who all struggle with traditional drying methods. Hence, there is recognition of a problem, which the right technology and service might viably address. The *unknown* was that the some maize is contaminated with aflatoxin, and that contamination increases every month. To be able to use hermetic storage devices effectively (the focus of AflaSTOP's storage component), moisture content in the grain must be less than 13.5 percent; in certain parts of Kenya, the climate makes this difficult to attain without technology.

Describe the CLA approach or activity employed.

Our approach to CLA has crystalized into core elements:

- AflaSTOP articulated a hypothesis that a drying technology existed that could dry maize to 13.5 percent in Kenya; make business sense for manufactures, service providers, and smallholder consumers of the service; and feasibly be adopted in the marketplace. We then continually tested and re-assessed the varied sub-assumptions that go into this larger hypothesis. This practice helps keep the learning element of CLA more agnostic, with staff less "entrenched" in a particular learning outcome, and rewards critical thinking.

- The team paired a healthy sense of pessimism with very ambitious goals, recognizing that failure is a part of learning. Many projects treat their activities as successful until proven failed. We treat our activities as "maybes" until proven successful.

  Accordingly, we design with multiple possibilities, as some will fail. For example, AflaSTOP originally sponsored the design of three dryers, yet only one advanced beyond the alpha testing phase. The one we most expected to succeed — a solar dryer — did not perform in humid Kenya. For the one that advanced (a shallow bed portable batch dryer), AflaSTOP was unsure of the best route to market:

formal small/medium enterprises, or informal artisan manufacturers who re-engineer' products by the road? For months we investigated both paths, conducting manufacturing training with each group, hosting feedback sessions on design and price and contracting a limited number of dryers from each to determine which performed best and what the process might tell us about design weaknesses, cost assumptions, "star" manufacturers, and other factors. Surprisingly, the artisans performed best.

- Do not waste too much time coming up with the perfect design on paper. It is better to have an approximate design or commercialization strategy and then get into the field and communicate, pilot, and verify. Change early — not late. This approach requires a willingness — *and a shared expectation between donors and implementers* — to adapt. This relates to our work planning and budgeting as much as the micro-details of managing subcontracts and scopes of work. For example, we have modified our contract seven times with the dryer design and manufacturer training organization. Both parties must understand from the get-go the iterative and dynamic nature of the scope, and factor a subcontractor's comfort level with and ability to adapt into the evaluation process (and the contracting mechanism). Adaptation becomes a part of the "best value" determination; it is not all about cost, because cost may change.

- Setting decision points in our work plan helped keep us focused (and communicating). For example:

    - Assessing whether a suitable technology is available and worth building from (e.g., through a dryer source book, collaborator input)
    - Evaluating the alpha design validly to move to new phases (e.g., through field testing, releasing some early designs for another project to test)
    - Evaluating potential dryer cost structures to establish economic viability (e.g., beta testing, feedback meetings with shellers)
    - Evaluating market players' cost structures to determine sufficient profitability for all players to invest in marketing (e.g., through training/pilot production with manufacturers, tailored commercialization strategies)

AflaSTOP's collaboration is inclusive. Our commercial approach, for example, acknowledges that the dryer must make sense for everyone. We value the input of each stakeholder group equally, because their role in the economic equation matters equally. By having clearly defined learning outcomes from each interaction, our frontline staff understand how the information they hear in the field affects the overall direction. This encourages more effective feedback loops.

Regular communication with the donor has greatly facilitated our adaptive approach. The strategies outlined above have all helped us engender a shared investment in our approach.

Were there any special considerations during implementation (e.g., necessary resources or enabling factors)?

Integrating CLA elements into the "soul" of our work planning process has been a critical success factor in our ability to sustain this approach over time, make it practical, and maintain shared expectations and investment with donors. In particular, ensuring that we have a properly allocated budget for communication has been important; we devote considerable time during work planning to re-tailoring our budget. Activities that support adaptation and learning, such as pilot tests and surveys, often feel more concrete and "technical," and are sometimes easier to plan for and budget. Collaboration is time-intensive, and time is money.

AflaSTOP's varied collaborators need unique communications: the local business community needs face-to-face meetings, demonstrations, and business-oriented information; the research community needs formal, academic papers and international conference presentations; and USAID needs reports, briefs, graphics, and newsletters tailored to communicate the development and project implementation perspective. The communication demands on our small staff have been intense and will likely only increase over time as we enter the final year of implementation. Putting together a formal communication strategy, and implementing it, took longer than hoped, but did strengthen our understanding of each audience's communication needs, associated tools and resources,

resources needed to produce them, and how to leverage our entire team (core staff, consultants, other projects, and other collaborators) to the best of our ability to achieve this objectives effectively and efficiently.

Also, unlike many "normal" projects, AflaSTOP has required multiple post-award approvals from government departments covering the environment, science, and ethics, as well as buy-in from county governments for some activities. Taking the time to sit and explain the aim of the program and reaching out to people for their help in moving the processes forward is an important part of collaboration. Tapping into local knowledge and relationships has also been an important resource in identifying informative participants for user testing at different stages of the dryer. Ministry of Agriculture workers know local businesspeople who already offer services to farmers, and they prepare the way for AflaSTOP to test the dryer with existing businesses and farmer clients.

Lastly, the project has benefited greatly from a chief of party who views collaboration, learning, and adaptation as simply good practice. It is not a buzzword but the proper, logical way to get the best and most sustainable results. CLA cannot be driven from thousands of miles away by the organization's headquarters. Without leadership in the field, internalizing the logic and value of CLA will only break the surface. Meridian Institute, which helps build linkages to PACA and oversees ACDI/VOCA and Agribusiness Systems International's implementation of AflaSTOP, has also played an important role in this approach, by encouraging it and having a prime-sub relationship that assists with and respects the iterative process of learning and adaptation. Lastly, our relationship has not been harmed by the "competitive positioning" that often poisons a learning culture. This helps create an open environment for information to flow.

What have been the outcomes, results, or impacts of the activity or approach to date?

The ultimate indicator of success will be commercialization of the dryer on the market. AflaSTOP will not last through the technology uptake and mass adoption cycle, yet with support of other collaborating projects working in post-harvest management and our technology-transfer agenda this year, we will be able to monitor how well the technology moves to market.

The dryer was demonstrated for the first time in public at the East Africa Grain Council Agribusiness Fair in August 2015, to great interest by farmers and businesses, and news and TV media interest materialized within weeks. While not a measure of impact, this does demonstrate a significant level of interest by key stakeholders.

We also designed a small pilot with shellers during the fall harvest season. In exchange for a (slightly) discounted dryer, shellers will provide data on dryer performance, farmer satisfaction with service, rates charged, demand for service, and profitability that will inform final tweaks to the design and commercialization strategy. The main harvest season (when drying services will be in-demand) commences in early 2016.

Specific CLA outcomes to date include the following:

- AflaSTOP dropped two of the three initial dryers, allowing us to focus resources on the best technology for the context.

- Learning how artisans re-engineer designs has informed our understanding of what is needed for scale up with quality control. For example, before the tipping point of independent scale-up, there must be enough good-performing examples demonstrated on the market (thus, a sufficient number of trained artisans who understand key performance elements), so that if someone manufactures a bad product, consumers blame the manufacturer, not the product.

- We are confident that shellers will embrace the drying technology, based off initial feedback dryer tested (early) in Kenya by MAICE project, and the SBPB dryer in Guatemala by a USAID PH Innovation Lab

What were the most important lessons learned?

An initial read of AflaSTOP's CLA approach may appear to be standard for a product development-to-market process. But truly applying this framework in the donor-funded development programming context is less common, and may partially explain why many projects fail to reach their hopes for widespread adoption of new technology, be it an improved input, a new smallholder service, or a tailored financial product.

AflaSTOP has certainly had stumbles — and we are still in the early stages of the critical commercialization period, so there is much to learn over the next year — but there are several key lessons we feel are broadly transferable to other contexts:

- Stronger discipline by technical staff to set a hypothesis that underlines their expectations for change, and link that hypothesis to the work planning process to test it.
- Plan for success, but articulate the risks and specific dates when decisions about adaptation will be made. Better articulation of this in work plans can build needed donor buy-in.
- Build in time for pilots and carefully crafted stakeholder feedback sessions. These need senior management attention and clearly articulated desired learning outcomes.
- Design flexible budgeting, so that people can react when a new opportunity or needed adaptation arises. Also dedicate funds for collaboration (e.g. level of effort and travel).
- Engage with other programs. This reveals previously unknown opportunities.
- In technology development, focus on need, but also on the economics of each supply chain participant. For example, there must be a balance of the desired capacity of the dryer, the cost of different capacities, service provider capacity (and timeline) to invest and repay. Balance — so crucial for adoption — requires compromise.

Within ACDI/VOCA as an organization, we are working to synthesize these lessons and internalize them across projects. This includes presentations by the chief of party, development of commercialization tools, graphics that articulate our process, and good old-fashioned hallway sharing with other influencers.