Failures, Pivots, and Lessons Learned

DECEMBER 2014 – NOVEMBER 2019
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# TERMS & ACRONYMS

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<tr>
<td>Agtech</td>
<td>agricultural technology</td>
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<td>AWP</td>
<td>Acceleration Work Plan</td>
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<td>BoP</td>
<td>Base of the Pyramid</td>
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<td>BPA</td>
<td>blanket purchase agreement</td>
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<td>BOGO</td>
<td>Buy One, Give One</td>
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<td>CEC</td>
<td>The Centre for Environment Concerns</td>
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<td>CEO</td>
<td>Chief Executive Officer</td>
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<tr>
<td>COP</td>
<td>Chief of Party</td>
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<td>COR</td>
<td>USAID Contracting Officer’s Representative</td>
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<td>Dexis</td>
<td>Dexis Consulting Group</td>
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<td>DST</td>
<td>South Africa Department of Science and Technology</td>
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<td>IIAC</td>
<td>Innovation Investment Advisory Committee</td>
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<td>HBR</td>
<td>Harvard Business Review</td>
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<td>Kaizen</td>
<td>The Kaizen Company</td>
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<tr>
<td>local</td>
<td>For innovator: located in the country affected by innovation</td>
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<tr>
<td></td>
<td>For vendor: located in Africa or Asia</td>
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<tr>
<td>LL</td>
<td>lessons learned</td>
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<td>LOE</td>
<td>level of effort</td>
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<td>M&amp;E</td>
<td>monitoring and evaluation</td>
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<td>NGO</td>
<td>non-governmental organization</td>
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<tr>
<td>nonlocal</td>
<td>For innovator: not located in the country affected by innovation</td>
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<td></td>
<td>For vendor: not located in Africa or Asia</td>
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<tr>
<td>PAS</td>
<td>pre-award survey</td>
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<td>Rd.</td>
<td>Round, as in Round 1, Round 2</td>
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<tr>
<td>R&amp;D</td>
<td>research and development</td>
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<tr>
<td>RFP</td>
<td>Request for Proposals</td>
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<td>RVPM</td>
<td>Rapid Vendor Procurement Mechanism</td>
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<td>Sida</td>
<td>Swedish International Development Cooperation Agency</td>
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<td>SME</td>
<td>small- to medium-size enterprise</td>
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<td>SOW</td>
<td>scope of work</td>
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<td>SOP</td>
<td>standard operating protocol</td>
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<td>SROR</td>
<td>social rate of return</td>
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<td>SWFF</td>
<td>Securing Water for Food</td>
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<td>TA</td>
<td>technical assistance</td>
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<td>USAID</td>
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<td>Water Governance Institute</td>
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EXECUTIVE SUMMARY
In 2019, Securing Water for Food (SWFF) marked its five-year anniversary. During that time, SWFF has lived by the motto “Execute, Fail Fast, Fix it, Learn, and Improve”. This has been a consistent view across the program and throughout the SWFF ecosystem, which includes the Founding Partners, The Kaizen Company (Kaizen) Home Office, The SWFF Technical Assistance (TA) Facility, The Innovation Investment Advisory Committee (IIAC), and the procurement pool of support vendors. In addition, the SWFF ecosystem also now includes the many external evaluators that have reviewed individual SWFF innovations as well as the overall program. While SWFF and its innovators have experienced a multitude of successes, the program has experienced significant failures as well. With each failure came analyses and lessons learned, which have helped the program demonstrate the impact of technical assistance and helped innovators pivot to make more cost-effective, efficient choices and increase the likelihood that some innovations will reach sustainable scale by the end of the program.

One such failure was noted by the SWFF Mid-Term Program Evaluators who noted, “From a variety of angles, SWFF is sitting on a gold mine of information, which seems to be just out of reach in terms of sufficient capacity to mine it. While not a research initiative, efforts to draw out lessons learned (like the forthcoming gender analysis) would be of great benefit to others designing development initiatives (in the water sector or otherwise).” With this report SWFF wants to start a conversation on speaking openly of the failures, pivots, and lessons learned so that they can be used to for the upcoming Water and Energy for Food program as well as in the broader food-water nexus.

**Categories of Failure**

Harvard Business Review (HBR) describes three categories of failure: intelligent, complexity-related, and preventable. Using this framework, it was determined that the clear majority of the failures experienced and documented in the SWFF program fall into the intelligent category. SWFF experienced “good” failures, as they “provided valuable new knowledge that can help an organization leap ahead of the competition and ensure its future growth.”

As the TA Facility set up operations and established the various portfolios and relationships with the SWFF innovators, experimentation (thus failing) was expected and necessary. The head of USAID’s Global Development Lab Center for Development Innovation encouraged the SWFF project to adopt a culture of experimentation. SWFF was doing something new – providing technical assistance to innovators that were awarded grants from a Grand Challenge.

**Permission to Experiment and Fail**

SWFF’s experimentation often produced failures quickly and provided valuable information to refine processes and outputs. Experiencing and talking about failures was tolerated so that success beyond mediocrity could be achieved. The knowledge (what HBR called “improvement opportunities”) gained from trying and failing was purposely extracted. When something didn’t work, the team most often asked how it could be fixed. And because the permission to fail was given from the very beginning of the project, an initial culture was created that welcomed experimentation and the expectation was that the program would purposely pivot with the new information gained from failures. Failures helped improve program strategy and execution.

The team supported a spirit of inquiry, openness, and a continuous improvement culture that valued thoughtful reflection and constructive behavior toward failure. Tools were created to discover successes and failures. SWFF was able to document why something worked and what did not.
Thinking About and Documenting Failure

In their mid-term review of SWFF, evaluators noted that encountering failure is a sign of the risk that SWFF has been prepared to face, and that a lack of failure would indicate both low expectations and a conservative approach. While venture capitalists sometimes shun discussion of failure, in a public body, diagnosis and strategic thinking about failure are invaluable to learning. A key recommendation coming out of the evaluation interviews was for SWFF to document failure more clearly and explicitly so that others may learn from what might have gone wrong. To do this, the program thought about failure in the following ways:

- Failure is inevitable.
- There is a need to move beyond “failure is bad” thinking.
- There is a need to shift toward a culture of psychological safety to tap the rewards of failure identification.
- The program’s documented successes should be used to disconnect failure from negatively impacting the reputations of the players in the SWFF ecosystem.
- A failure is not a lesson learned.
- A failure is not a problem encountered.
- SWFF advocates thinking of failure in terms of failures and pivots.
- There is a need to learn from failures to improve future performance.
- SWFF wants to raise the bar on failure documentation in international development.

Through this lens SWFF examines the programmatic and innovator activities over the life of the project addressing specific failures, background of those failures, and the resulting pivots.
FAILURES, BACKGROUND, AND PIVOTS / RESULTS

SWFF PROGRAMMATIC FAILURES

While SWFF is a highly successful program, it has experienced degrees of failure and pockets of failed activity. This, however, stimulated close analysis and examination of the factors causing the failures. SWFF is fully engaged in learning from failure and, in part, from success. A critical aspect of innovation is the recording of and learning from failure. SWFF has evidence of proactively addressing the failures and working diligently to pivot and take actions that would correct the failure, create benefits for the program or innovators, and result in lessons learned and recommendations that have the potential to influence future development projects and other Grand Challenges.

To examine failure within the context of any organization, it is important to analyze excellence and alignment in people, purpose, activity design, processes, resources, customer service, and overall project results. This classification allows projects to be benchmarked against others, to report on both failures and successes, and serves as a basis for further learning and development of competencies in these areas. Assessing project success is not precise, and assessing project failure is equally as difficult, but SWFF has worked to identify these issues and used the lessons learned to pivot, change processes, influence decision making, and make adjustments in the way business is done.

Project management for SWFF was not a straight-line process, but rather an iterative process that required agile rethinking, coachability, ability to pivot, a lean business mindset, a bias toward results, and an ardent focus on contingency planning, what-if scenarios, and creating an “it’s okay to fail” culture.

The failures SWFF encountered throughout the life of the program are presented below, including a close analysis and examination of the factors that caused these failures. These programmatic failures have been organized through the assessment of program coordination, procurement, acceleration facilitation, grants and finance, and monitoring and evaluation.

Program Coordination

Failure #1: Too Much Reliance on Expert-Led Trainings

**Failure:** Reliance on expert-led trainings and workshops rather than experiential learning led to low innovator satisfaction.

**Background:** In the early months of the program, SWFF offered a variety of options to engage innovators and provide business-oriented educational opportunities. These included workshops, trainings and convenings led by experts on acceleration, partnerships, business model development, gender, legal issues, and investment issues. The trainings were meant to provide innovators with the adequate tools and solutions for their business issues. Although some participants felt that they learned valuable information from expert-led workshops, they didn’t lead to practical and actionable
results. Instead, the most highlighted aspect of these educational opportunities was the peer-to-peer interaction and collaboration that took place. The program found that in the workshops, trainings, and convenings, experts were taking a prescriptive approach rather than listening to innovator needs. In addition, experts often did not have knowledge of the local context to best be able to address issues and concerns raised during these engagements.

**Pivot / Result:** Over time, the feedback received from SWFF innovators about what worked and what didn’t work during annual convenings guided the program to try something different. SWFF shifted to experiential learning as a format for workshops and organized an “UnConference” as a pilot event in 2016 as part of the annual innovator convening. In the UnConference, SWFF innovators could either facilitate or participate in talks around topics of interest related to their experiences, such as “How to Get the Most Out of Interactions with Partners” or “Lessons Learned on Entering a New Regulatory Market.” The initial UnConference was so successful that every innovator indicated in their 2016 post-event survey that they would be interested in participating in future UnConference events. Multiple innovators characterized it as informative, educational, informal, valuable, collaborative, and the “best SWFF conference yet.” The program found that innovators were willing to openly share lessons learned, failures, and key insights in these sessions and brought more value to their peers than any previous expert-led training.

Overall, the unstructured event reinforced a communities of practice approach allowing innovators and SWFF to be a part of a wider network. Experiential style learning such as the UnConference format strengthened the bonds between SWFF innovators and paved the way for continued collaboration, sharing lessons learned, challenges, and best practices. Shifting to an experiential style of learning from an expert-led training approach was also more cost effective and reduced the management burden for the program overall.
SWFF Procurement

Failure #2: Lack of Innovator Engagement

Failure: Lack of innovator engagement and input during the TA vendor selection process.

Background: Since the beginning of the program, the SWFF TA Facility has engaged innovators in the development of the technical assistance scope of work, with the belief that their input and understanding of their own needs was crucial in ensuring that the assistance being offered would actually benefit the innovator toward meeting their milestone targets. Once the scope of work (SOW) was developed, it was released as request for proposals (RFPs) to blanket purchase agreement (BPA) holders through the SWFF Rapid Vendor Procurement Mechanism (RVPM). After careful evaluation of applications and the selection and approval of vendors, the vendor would then be ready to execute the SOW. SWFF failed by not recognizing early enough the importance of involving the innovator during the vendor selection process. By only engaging them during SOW development, SWFF missed out on the valuable input that potential vendors could learn from.

In several cases in Year One, there were mismatches between the expected and actual outputs or outcomes of acceleration support engagements. For example with the innovator, World Hope, the team received a market study that was more of a desk-researched market analysis rather than the tangible market linkages that the organization envisioned. Innovator, Adaptive Symbiotic Technologies, also expressed disappointment that presentations to potential investors made by Imagine H2O on its behalf did not lead to in-person meetings and ultimately to funding deals as intended.

Pivot / Result: Understanding the need to involve innovators in the vendor selection process (while still remaining compliant with USAID procurement rules and avoiding conflicts of interest), the TA Facility revised the procurement process to include a competitive range component that allowed Innovators the opportunity to have input into which vendor was selected to work with them.

Once applications were submitted and a thorough evaluation was conducted by members of the SWFF Home Office and TA Facility team, the two top scoring vendors received a competitive range notification. Coordinated by the Acceleration Facilitator, the innovator was then allowed to interview
potential vendors and provide their recommendations to the SWFF TA Facility before a final selection was made. This pivot empowered innovators to be a part of the process, ultimately increasing their buy-in and engagement in the technical assistance being provided. As a result, this pivot contributed to an increase in the percentage of support engagements that met innovators’ expected inputs.

In 2015, only 50 percent of business services delivered by the TA Facility met innovator expectations. In 2016, 88 percent did so. In 2017, 84 percent of completed support engagements met expectations. With 27 support engagements completed in 2018, 100 percent met innovator expectations. To date in 2019, 13 engagements have been completed, with all of them meeting innovator expectations.

Failure #3: Lack of Local Context & Networks in TA Provision

Failure: In creating the program’s pool of vendors, the SWFF TA Facility failed to take into account how much local context and local networks matter when providing technical assistance.

Background: In SWFF’s first year, Kaizen released its first call for RFP to potential applicants from around the world to join the project’s small pool of support vendors. After an extensive evaluation process, 16 vendors were awarded BPAs, giving them the opportunity to bid on call order proposals through SWFF’s RVPM. Of these 16 vendors, only two were considered local, the remaining 14 were all based in the United States. Upon completion of the project’s first year, the SWFF Founding Partners determined that support provided by local vendors would prove to be more valuable than support delivered from a distance by a vendor with limited or no firsthand experience in-country. Thus, in 2016, Kaizen held a second call for RFPs for organizations interested in becoming an approved SWFF support vendor. For this second call, the team focused on reaching out to potential applicants and networks of organizations based in the countries where the innovators operate. With a total of five calls for RFPs, the TA Facility has worked to increase the number of local vendors in the RVPM wherever possible.

Result / Pivot: Currently, more than half of SWFF’s RVPM vendors are based in regions where innovators operate. In 2015, local providers accounted for 21 percent of SWFF business service engagements. In 2017, that percentage more than doubled, to 56 percent. Seventy-eight percent of the business service engagements in 2018 were delivered by local providers. Of the 10 support engagements in 2019, 60 percent were delivered by a locally based vendor.

In addition to increasing the number of local vendors in the RVPM, Kaizen also altered the current scheduling of vendor calls for RFPs to include an off-cycle, rolling basis mechanism. This off-cycle mechanism enabled SWFF to better serve its innovators by mobilizing vendors according to the timing needs of the innovator rather than forcing the innovator to adjust to SWFF processes. To ensure that all qualified vendors were considered, SWFF allowed innovators to make referrals/recommendations based on their past experience and networks of colleagues, thus utilizing their on the ground knowledge of expertise in the field. Adding the complementary off-cycle process created a potential conflict of interest risk that needed to be addressed. To mitigate that risk, Kaizen developed a detailed process to qualify innovator-referred vendors so that they may offer support services, while avoiding any conflicts of interest, specifically related to existing relationships between the vendor and the innovator in which the innovator stood to benefit financially from SWFF call orders that their recommended vendor could win. While this has yet to be put into practice (as no vendors that fit into this category have applied), this adjustment to the process demonstrates to the innovator SWFF’s dedication to utilizing local vendor support.
Acceleration Facilitation

Failure #4: Innovator Needs Not Met Through Consortium Approach

Failure: Innovator support needs were not effectively or thoroughly addressed through a consortium approach to delivering technical assistance.

Background: At the beginning of the SWFF program, the TA Facility delivered technical assistance to the 17 innovators that comprised the first cohort of awardees through a consortium of three vendors - Imagine H2O, MRIGlobal, and SNV USA. Imagine H2O, a business accelerator based in San Francisco, California, focused on efficient water usage by individuals and municipalities. MRIGlobal brought an engineering skill set to assist SWFF enterprises with effective and low cost product design. SNV USA brought a broad skill set and had the ability to serve SWFF enterprises through its locally based offices and consultants around the world.

After the first year of working with SWFF innovators to diagnose their support needs and identifying where it could add value, the TA Facility recognized that a consortium of three support providers was not able to comprehensively and effectively address the broad range of needs. Ultimately, approximately 20 different areas were identified for which these innovators needed support, based on SWFF discussions with them, their responses to the Innovator Needs Diagnostic, and their specific support requests. The TA Facility also received feedback that innovators placed a higher value on support delivered by a provider based within their regions of operation or, at a minimum, bringing extensive experience and knowledge of doing business in a developing country context.

Feedback from the enterprises was both qualitative and quantitative. At the close of a support engagement, the innovators completed a customer feedback survey, which asks for the innovator’s overall satisfaction with the support, among other measures. The innovator also provided comments regarding the value of the support received and how they anticipate applying the support, if at all. From the written comments and quarterly check-in calls with the innovator, the TA Facility determined if a support engagement was immediately successful, meaning that it delivered what the enterprise expected. In the first year of the TA Facility, only 50 percent of the support engagements were
determined to be immediately successful. Overall satisfaction across the support engagements delivered was rated at just over 4 out of 5.

Comments from the innovators were primarily concentrated within two themes. First, the innovators believed that the consortium members, while well intentioned and hard working, were too general in their capabilities. For example, while any of those organizations could deliver a sales and marketing strategy, none of them had built a specific, commercially successful service offering in the space and a methodology for delivering it. Second, the support provider generally was not located within or near the region in which the innovator was operating and, as a result, there was a consistent perspective that “these providers do not know us.”

**Pivot / Result:** The TA Facility responded to this innovator feedback by shifting from a small consortium of support providers to an expanded vendor network. The TA Facility identified the breadth of support needs across the innovators, including business modeling, sales and marketing, communications, website development, and partnering strategies, among others. Research was then conducted to identify vendors within given regions that could provide services within the support needs. The goal was to get as much coverage across the support needs as possible within the regions where SWFF innovators were operating.

Vendors were then vetted and pre-qualified to deliver services within the SWFF innovator support needs. Once pre-qualified, the vendors could then submit proposals for the call orders released within their pre-qualified service categories.

By the end of the fourth full year of support provision, the feedback indicated services had substantially improved. Overall satisfaction improved to 4.67 out of 5.00, and 100 percent of the support delivered was immediately successful.

**Failure #5: Misaligned Expectations Between Innovator and Vendor**

**Failure:** Misaligned expectations led to innovators being unsatisfied with the support received through the SWFF network of vendors.

**Background:** In its first year, the TA Facility took a hands-off approach, intentionally choosing to allow the support engagement to run its course between the SWFF innovator and the support provider. By taking a step back, the TA Facility believed it would enable a more streamlined flow of communications.

However, as many of the support engagements were ending, the TA Facility heard feedback from the innovators that the deliverables were not meeting expectations, or that the vendor was not up to speed on available innovator background information, and thus engagements were taking too long to get off the ground because of the vendor learning curve. In other cases, the TA Facility heard from the vendor that the innovator’s expectations grew beyond the original scope of the work. For a variety of reasons, innovator and vendor expectations were frequently misaligned, causing frustration on both sides.

Additionally, in several cases the innovator came into the support engagement expecting that, after some initial discussion at the project kickoff, the vendor team could execute the SOW on its own for two months and come back with an output that fully met innovator expectations. The innovator had limited understanding that a successful outcome was in part dependent upon the contribution from their own staff.
As a result, both the immediate success rates and the long-term success rates of the support delivered were falling well short of the target. In fact, only 52 percent of the support engagements delivered through the TA Facility in the first year were considered long-term successes, meaning that the deliverables, insights, and/or recommendations were adopted and applied for tangible benefits. The average promoter score, measuring the degree to which the innovator would recommend the vendor to other SWFF innovators, was only 6.93 out of 10.0, well below the 8.0 target.

**Pivot / Result:** As a result of these outcomes, the TA Facility took a hard look at the acceleration support planning and delivery process to see where opportunities for misalignment of expectations or deviation from an agreed set of outputs could occur.

It was discovered that there was a risk of misalignment when vendors were drafting and submitting proposals for the released call orders. The vendors needed a mechanism to be quickly brought up to speed on the current state of the innovator’s business, the details of their technologies and business models, and the scope, outputs, and outcomes of prior support delivered. The TA Facility created a Google folder for each innovator and shared access to it with all vendors that had been vetted to participate in the SWFF program and had signed non-disclosure agreements. In the folder the vendors could find the innovator’s original application to SWFF, their Innovator Needs Diagnostic responses, and prior scopes of work for support received, along with the deliverables from that support, among other documentation. Vendors were made aware of the availability of this information with each call order released. By the final year of the SWFF program, vendor proposals were even assessed based on the degree to which they had read through the available documentation and reflected relevant background information in their proposals. This early preparation helped the vendor familiarize itself with the common knowledge of the innovator, leading to more valuable discussions at support engagement kickoff, and enabling a faster kickoff and early value delivery.

A risk for misaligned expectations at the engagement work planning phase was also identified. The work plan is the first deliverable for every SWFF support engagement. The work plan serves as the document of record that sets the expectations to which USAID, the innovator, and the vendor agree. Upon reviewing work plans for support delivered in the first year, the TA Facility began to identify where a lack of specificity could lead to misunderstandings. For example, rather than documenting a deliverable as a sales and marketing strategy, which could be interpreted as many different outputs ranging from very detailed, implementation plans to high level strategies, the TA Facility would break it down to a level that would serve as a skeleton outline of the sections to be included in the strategy. This included a section that covered both what is in scope and specifically what is out of scope, as well as a section that documented the time commitment expectations from the innovator’s team so that everyone knew upfront how to manage their work responsibilities.

The Acceleration Facilitator also joined each support engagement kickoff call and check in with both the innovator and the support provider across the life of the engagement. This enabled the Facilitator to detect up front if there were any misunderstandings and drive clarification of expectations from the start. This also served as a check against scope drift as the project progressed.
Failure #6: Second Level TA Delivery Before the Development of Foundational Components

**Failure:** The delivery of second level technical assistance, before foundational components were in place, failed to result in positive outcomes.

**Background:** The TA Facility differentiates technical assistance according to whether it delivers foundational or more advanced outcomes. Foundational, or first level, support would typically include support in customer validation (for example, designing a customer survey, guiding the innovator in data collection, and analyzing the data for insights) and creating or revising a business model canvas. Second level support built on the foundations and might include sales and marketing strategies, partnering strategies, and market expansion planning, to name a few.

In the first year of delivering technical assistance, the TA Facility took a deferential approach to the service and support it offered an innovator. The TA Facility took the requests for support from each innovator, worked together with them to develop the scope of work, and then moved forward with vendor selection. However, in several cases, once the vendor was selected and connected to the innovator, it was determined that foundational pieces were not in place that would enable the delivery of the support requested. This happened most frequently in the cases of requests for help to create a sales and marketing strategy. The vendor would begin working with the innovator to gather internal documentation that would inform the sales and marketing scope of work only to find that there was limited customer feedback and information available, that the business model was not well documented, tested, and revised, or that a financial forecasting model was either non-existent or incomplete.

In those cases the focus of the scope of work had to be shifted and an attempt made to provide a variation of the original support request while getting missing foundational pieces in place.

**Pivot / Result:** The TA Facility took several steps to address this issue. First, the Acceleration Facilitator developed the Innovator Needs Diagnostic. The diagnostic was loosely designed around the business model canvas components. Questions were designed to assess an innovator’s progress within areas such as knowledge of the customer, the value proposition, financing, partnering, sales and marketing, and communications and branding, to name a few.

The innovator’s responses to this diagnostic were reviewed by the Acceleration Facilitator prior to the annual acceleration planning call with the innovator. The diagnostic helped the Acceleration Facilitator to identify gaps where the TA Facility could offer value-add support services. In turn, the innovator had the opportunity to self diagnose. Often in the acceleration planning calls, the Acceleration Facilitator and the innovator were generally in alignment on the areas of support to prioritize for the coming year.

The Innovator Needs Diagnostic served an important purpose to highlight, with reasonable objectivity, where the foundational components were missing and needed to be addressed. The innovator could easily recognize through self diagnosis where their customer knowledge and business models were falling short and required focus. With the Diagnostic as a key input into the discussion, the Acceleration Facilitator and the innovator could create a roadmap for support over the coming year and beyond, which would be reassessed annually as circumstances changed and new information emerged.
**Failure #7: SWFF Gender Recommendations Insufficiently Tailored to Innovator**

**Failure:** The attempt to scale acceleration support through a group setting failed to deliver recommendations and insights that were sufficiently tailored for adoption and implementation.

**Background:** With the intention of efficiently delivering support services, the TA Facility leveraged opportunities such as annual convenings of SWFF innovators at events such as World Water Week to conduct seminars focused on, for example, ways to make progress on gender goals. The seminars were often conducted in an interactive classroom setting. However, they consistently received poor reviews, which indicated that discussions and recommendations were not in the context of each innovator. This was consistently the case with seminars conducted to help innovators identify approaches to achieve gender equity goals and specifically improve the way they serve the female customer segment, recruit female staff into their organizations, and engage with females across their value chains.

**Pivot / Result:** Responding to this criticism, the TA Facility began to draft support plans and scopes of work to specifically address business model gaps and gender equity opportunities tailored to an individual innovator and delivered by a dedicated vendor selected through the vendor procurement mechanism.

Gender components were incorporated within each scope of work regardless of its primary area of focus. For example, a scope of work to create a sales and marketing strategy would also include an assessment of how the product or service should be pitched differently to the female customer segment given any variations in the perception of the product or service’s value proposition. In some cases, scopes of work were written to specifically identify or address gender equity concerns. In one instance, Ignitia received support to conduct surveys with female focus groups to identify any unanticipated negative impact females may experience from their male counterparts as a result of their use of Ignitia’s service and the resulting crop yield increases. In another instance Meat Naturally received support to assess a potential new business unit focused on small livestock, owned and raised primarily by women.

These pivots resulted in recommendations and deliverables that were tailored to innovator context and recognized as implementable and valuable.
Grants and Finance

Failure #8: Complicated and Burdensome USAID Contracts

Failure: Complicated standard USAID contracts were inefficient and burdensome on awardees.

Background: At the inception of SWFF, the program used standard USAID cooperative agreements with the first round of awardees. The logic for using this type of agreement was that many organizations had not worked with USAID prior to receiving their SWFF award and there was a need for an extra level of review and oversight. However, this contract type proved to be challenging and burdensome for both the innovators and the program. It included complex legal language and required extensive administrative capacity. Awardees were small enterprises with limited resources and limited capacity to fully comprehend the contract and meet their requirements in a timely manner, even with extensive training from USAID. On average, it took organizations six months (sometimes even nine months) to understand the procedures, provisions, and requirements of their contracts to be able to request and receive their payments. The SWFF process for Rd. 1 required a lot of time from awardees and there were both language and cultural differences that required applicants and awardees to spend more time in the application process than the program intended.

Major discrepancies in the contracting system that needed immediate solutions included: difficulties with getting access to US-affiliated bank information from foreign banks; getting clarity on the exchange rate calculation method; and the milestones, which were mentioned in the contract, had not yet been quantified.

Pivot / Result: As a response to the feedback from innovators and other donors, the program switched to Fixed Amount Awards (FAA) and milestone based-funding. SWFF was among the first Grand Challenges to do so. A Fixed Amount Award is a grant agreement where USAID provides a...
specific level of support and where payment is based on the achievement of milestones as opposed to the actual costs incurred by the recipient. In the SWFF milestone-based funding structure, the IIAC and Founding Partners convene at the conclusion of the award year to determine if awardees move forward or not to the next funding year, based on the milestones reached. If an innovator meets most of their benchmark targets (within 80 percent or more of the target), then it is most likely that the IIAC would recommend, and SWFF Founding Partners would approve, that the awardee move on to the following year’s funding. If an awardee meets only some of their benchmark targets, then it is unlikely that the IIAC would recommend, or SWFF Founding Partners would approve, that an awardee move on to the following year’s funding. In the first review of the 16 SWFF awards, 9 awardees moved to Year 2 funding, and 7 awardees did not move forward.

Overall, the shift to milestone-based funding significantly simplified the contract process, reduced the administrative burden on awardees and the program, and reduced the time it took for businesses to receive their payments (from six months to two months or less). The FAA structure helped the program get businesses money faster. It also helped push awardees toward significant impact and scale. The program found that milestone-based funding, paired with acceleration support services, delivered greater impact than development dollars alone.

**Failure #9: Innovators Lacked Systems for Sustainability**

**Failure:** Many innovators did not have the financial, accounting, personnel, and strategic planning systems in place to accelerate toward sustainability.

**Background:** Though SWFF selected innovators who were brilliant scientists and entrepreneurs, many did not have the financial, accounting, personnel, and strategic planning systems in place to accelerate toward sustainable scale. Some innovators, such as Aybar Engineering, lacked the financial and accounting skills to properly manage the accounting operations of their organization. Some innovators were seeking to expand and hire additional employees in the near future, but did not have the proper employee handbooks in place to do so.

The TA Facility was set up as a hybrid incubator-accelerator to provide coaching, demand-driven services, grants and financial management guidance, M&E support, and partnerships to innovators. The TA Facility was not yet in place at the start of the first project year of Rd. 1 awards, and some innovators struggled with meeting some of the basic requirements of their awards because they did not have adequate systems in place.

**Pivot/Result:** To bring new awardees up to speed on USAID policies and procedures, the SWFF TA Facility, in consultation with USAID, began leading a series of workshops at the announcement of the awards, and webinars in the first few months after the award. The workshops also reminded Rd. 1 awardees of procedures. SWFF also created a new operations manual that will help awardees easily deal with their questions related to the SWFF award.

SWFF also implemented the Pre-Award Survey (PAS) template and provided grants and contracts capacity building managed by the TA facility. The TA Facility Grants and Contracts Specialist Rami Khyami compiled USAID’s best practices and simplified the PAS assessment tool, reducing redundancy of information needed to meet specific requirements. The goal of the pre-award survey was to assess the organization’s financial and organizational strength in the following areas:
organization structure and legal status; internal controls and segregation of duties; standard written, policies and procedures; current financial and accounting systems, budgeting, annual audits; and staff general experience and knowledge of USAID policies and procedures. Rami provided direct support and assistance with the pre-award survey, established standard forms or templates to ensure compliance with pre-award survey requirements and USAID operations procedures and financial reporting.

Rami also provided direct assistance in developing solutions to address current weaknesses in awardees’ systems and increase innovators’ grants capacity building. Support activities to SWFF innovators included: 1) conducting an information and instructional webinar to familiarize innovators with financial reporting requirements and standard USAID process; 2) one-one-one training sessions via conference calls and in some cases in person on-site visit; 3) providing innovators with guidance materials, an instructional guide, and explanations of specific requirements; and, 4) responding to ad hoc inquiries.

For example, Aybar Engineering’s accounting operations struggled in the beginning of the SWFF award due to a host of issues, including incompetent accountants and a lack of established policies and standard operating procedures. Rami worked closely with Aybar and provided specific support, including providing accounting and financial templates, training on how to use the templates, training on how to use Quickbooks, direct support in searching for and hiring a new accountant, and training the newly hired accountant on SWFF policies and procedures. Rami also provided a monthly financial review of Aybar for the entirety of their award. Through this direct support, Aybar’s financial systems went from “Acceptable” to “Operational” in Year One.
Monitoring & Evaluation

Failure #10: Failure to Account for Climatic and Weather Variations

Failure: SWFF failed to account for climatic changes or weather variations during award design and reporting, resulting in incomplete and/or late data delivery.

Background: To obtain funding and continue in the program, innovators were required to submit documentation semi-annually, along with a form with prerequisite information regarding their impact on a variety of factors for their beneficiaries. Those factors included the number of households and users impacted, their crop yields, water saved due to the innovation provided, and the innovator’s number of partnerships, product sales, profit margins, and matching funds. Some of those indicators, such as number of households affected and matching funds, were binding and determined whether the innovator progressed or failed the program, ending up as an alumnus. To progress, innovators had to meet pre-set targets for selected indicators decided through the acceleration process and provide backup documentation as evidence of meeting said targets. The assumption of having continuous crop cycles for all innovators delayed the reporting of a number of indicators, including crop yield, water savings, and impact on income for innovators.

For example, in the case of Naireeta Services, a prolonged drought prevented the Bhungroo innovation, which collects water during seasonal monsoons, from having any impact on crop yield or income until the semi-annual reporting of the third year of their award. As a result, three no-cost extensions were provided to Naireeta Services to provide information. Subsequently, funding was not released, as they were unable to provide their reporting information for the relevant, binding indicators. As drought was an unexpected and unplanned for condition, no cutoff factor or contingency plan was made in the event...
no information could be provided indefinitely. Similarly, in the case of innovators Futurewater and CUT/ITIKI, unexpected cyclones prevented data reporting for key indicators or caused severe setbacks in meeting their targets for binding or important non-binding indicators.

**Pivot / Result:** In the pre-award process SWFF began asking about the timing of the seasons and provided no cost extensions for seasonal variability, with the aim of delaying reporting until data had been received and any adverse weather variation was accounted for. This issue was not fully resolved, and though no-cost extensions worked in most cases, for Naireeta Services it did not account for an extended climatic issue such as a drought. To assure continued enrollment in the SWFF program, an external field evaluator was placed to ascertain the impact of the Bhungroos and their functionality in alleviating water shortages and increasing farmer incomes for their beneficiaries during the third year of the award. Where adverse weather conditions such as cyclones and flooding prevented innovators from reaching set targets, exceptions were made to ensure progression into the program. However, once again, no contingency was in place to address the consequential reduction of impact. In future like programming, SWFF recognizes that there should be cutoffs in place for extended adverse weather conditions, such as drought, as well as mitigation plans along with no-cost extensions for chronic climatic issues.

**Failure #11: Baselines Not Completed Upfront**

**Failure:** The program did not have baselines completed upfront to accurately draft the social rates of return.

**Background:** To estimate more detailed impact for the beneficiaries, the TA Facility performed social rates of returns (SROR) retroactively on innovators that had sufficient baseline data and data collecting methods. These SRORs attempt to explain the impact of funding on the income and quantity of farmers affected by a particular innovation and serve as a benchmark portfolio of internal rates of returns on investment. They include information regarding the detailed cost of inputs, loans, equipment costs, and crop sales to calculate net profits for each farmer under a particular innovator as well as macroeconomic information such as inflation rates, exchange rates, depreciation, and interest rates on a national level for farmers. The combination of the financial and economic indicators shows the net present value of investment and how it increases or decreases over time according to the changes in farmer income as caused by the innovation. Due to the quantity of variables involved, obtaining said information is easiest when it is collected at the onset with all the target variables well outlined in a questionnaire form and as a prerequisite part of the reporting requirements for program enrollment, especially since some aspects of the data are tedious and are difficult to obtain from the innovator themselves unless they perform financial rates of return internally. In many cases, the initial baseline was not calculated beforehand for project beneficiaries and thus was very difficult to recreate in an accurate financial manner.

**Pivot / Result:** The program managed to collect data where it otherwise would have proven difficult by incorporating questions related to the SROR in field evaluation surveys for a number of innovators. In the future, for similar programs or international development projects in general, SRORs should be performed proactively and a baseline must be established at the very beginning with continuous monitoring efforts keeping SROR data in mind. This can be done by requiring the innovators at the
onset of a program to provide a baseline themselves or to answer a tailored questionnaire with all the needed baseline data included to determine the average income levels, level of crop production, and other necessary information. This baseline data can then be tracked with updates to the information provided in subsequent questionnaires, with the social rate of return information incorporated to determine a more accurate return on investment for a program in relation to its economic impact on beneficiaries. As innovators expand rapidly at times and fundamentally change choices of crop selection and production patterns, semi-annual reporting should include any new farmers and establish baselines for any large number of incoming beneficiaries of a particular region or country. This also would improve data monitoring and collection methods for innovators.

**Failure #12: Burdensome Reporting**

**Failure:** Burdensome reporting experienced by SWFF innovators.

**Background:** Due to the number of indicators involved in data reporting, initial data and backup documentation provided incrementally throughout the three year award cycle proved difficult for many innovators. Since most innovators were private businesses with no history or need to collect impact data from their farmers, they were new to the process and it proved cumbersome to collect the data being requested semi-annually. There were many instances in which SWFF innovators provided insufficient backup documentation that severely delayed the disbursement of funding and the continuous selection process. When it existed, backup documentation was sometimes in other languages or was not translated well enough for adequate comprehension. Other times, there would be confusion as to what constituted sufficient proof for harder to quantify variables such as water savings measurements.

Moreover, there were also many reporting irregularities. Due to the delay or discrepancy between reporting times and harvest times for farmers using innovations, SWFF innovators would sometimes report hypothetical crop yields and hectares in anticipation of harvest rather than actual harvest numbers.

**Pivot / Result:** A number of processes were implemented and streamlined to more efficiently report impact data and to verify backup documentation in a more organized and thorough manner. A questionnaire with all the relevant data requested from innovators was developed through the Cognito Form, a web survey tool with tailored questions, whereby innovators could report their incremental numbers for indicators and annotations for their reasoning for meeting or not meeting their targets. This Cognito Form standardized all questions for data collection and allowed innovators to succinctly state their impact numbers along with annotations explaining any inadequacies, setbacks, or other reasons they anticipated not reaching targets. That helped in developing mitigating measures to keep innovators on track in meeting goals.

The SWFF Awardee Results Database was segmented and streamlined to make it easier to input information. Spreadsheets were designed to store the majority of indicator data in a series of labeled and segmented tabs allowing for easy data entry. A Google Drive folder was created for each innovator to upload all their M&E supporting documentation, arranged by folders for each indicator. These folders were further segmented by time of reporting. As a result the review and verification of backup documents and data entry into the database itself became much more efficient, as did communication with innovators regarding missing or insufficient backup documents or off track target numbers.
Failure #13: Insufficient Measurement of BoP Customers

Failure: SWFF struggles to measure customers at the base of the pyramid (BoP).

Background: In their applications, SWFF innovators typically claimed to benefit low to middle income farmers. However, SWFF faced significant challenges in helping its innovators measure the innovation’s impact on customers from the bottom of the pyramid or the lowest income groups, especially with innovators whose beneficiaries are not exclusively the extreme poor.

In many cases, SWFF innovators focused on middle income customers, with about 25 percent of their customer base being poor customers. Innovators chose middle income customers because they were more likely to fund the equipment costs or any other up front costs associated with an innovation and they were within the income range that makes it most profitable for a return. The disincentive to invest in working with the extreme poor, who may lack the resources to fund and/or maintain an innovation or may not be able to reap a significant enough profit for investment, was strong.

Quantifying the number of extreme poor that SWFF innovators worked with was difficult because farmers were often wary of reporting exact incomes to an outsider like SWFF, did not remember their previous harvest quantities and profits, or in some cases overreported belonging to the extreme poor income group out of a perception that this qualified them for subsidies, discounts, or future benefits. This bias was observed by external field evaluators when questioning beneficiaries reporting as extreme poor but having access to amenities and possessing appliances that suggested otherwise. Some beneficiaries reporting little to no income (subsistence farmers) may have had off-farm income or may not necessarily have been of the extreme poor grouping.

Pivot / Result: SWFF hired external evaluators with a mandate to focus on questions that asked which income group beneficiaries belonged to, and their previous, current, and expected incomes. Evaluators were prepared to discern income groups through observation and logical deduction. Questions also were included related to income, but in many cases, farmers did not self-report their income. Customers/end-users of each innovation were segmented into income groups to focus on those that targeted the extreme poor. This has led to the ability to know the income segmentation of most innovators and thus the numbers of extreme poor customers and end-users impacted by SWFF innovations. However, this does not change the economic circumstances behind the reasoning of private enterprises investing into the most profitable income demographic or the greater likelihood a particular income demographic has in being able to afford and maintain an agricultural innovation.

Thus, through the SWFF follow-on Grand Challenge, the Water and Energy For Food Grand Challenge for Development (WE4F), a practical workbook was created to help enterprises seeking to work with BOP customers to make it more likely that SWFF innovators and others will continue to work in this area. Progress has been made, but it is not significant enough and the program still struggles to deal with the biases, discrepancies, and gaps in income reporting on the beneficiary side and the incentives on the innovator side that skew income categorizations.
SWFF INNOVATION FAILURES

Though SWFF has a considerably higher risk profile than conventional funding programs, it also has pronounced features of risk mitigation through rigorous selection of innovations and the support provided to projects which are, by self-definition, not working conventionally. There is risk of failure at both the program level (as addressed above), and the innovation level, not having significant impact.

SWFF has substantial material on the obstacles and other issues that cause an innovation not to perform according to expectations. That information is an invaluable stock of well-documented knowledge, and, in spite of difficulties of disclosure and of complexity, it should be mined as a record of successful and unsuccessful engagement with obstacles. Through this examination of successful and unsuccessful engagements, SWFF presents several innovator failures that can be used to inform future similar obstacles.
Innovator Failure Examples

Failure #14: SkyFox Not Meeting Environmental Requirements

Failure: SkyFox was not meeting their environmental compliance requirements nor their customer targets.

Background: SkyFox’s innovation can produce two tons of catfish twice a year as well as associated nutrient-rich fish waste water to irrigate up to 25 acres through top of the hill aquaculture ponds. These aquaculture systems are constructed and managed through mobilizing groups of up to 30 farmers and requiring them to pay a leasing fee for the system, which is deducted from their harvest. This business model carries an inherent risk in that there are severe fluctuations and inconsistencies in both the supply and quality of fish feed and fingerlings sourced by suppliers in their value chain. Initially the franchisee model SkyFox was implementing was failing as it was not adequately expanding their customer base. This was also due in part to SkyFox’s lack of understanding of the need for standard operating protocols (SOPs), which in turn created inconsistency throughout the company. In addition due to the rapid expansion of SkyFox into multiple countries (Guinea, Sierra Leone, and Burkina Faso) they were failing to meet the environmental compliance requirements that could have potentially prevented them from continuing in the program. This was due to the rapid scaling of the organization as well as its inadequate and disorganized delegation structure from its main office to its country managers which led to them being unable to meet EPA requirements.

Pivot / Result: To mitigate the variability in the quality and supply of fish feed and fingerlings, the TA facility recommended that SkyFox work with multiple suppliers. To ensure consistency, a feed quality appraisal process was developed. SkyFox also then proceeded to centralize operations and set up its own hatcheries in strategically located and central areas to mitigate against fingerling risks. Third, quality suppliers then took an role in fingerling supply thus reducing logistical costs for customers. To further solve their distribution issues and franchising problems, a new business model was developed in which SkyFox sold the finished fish product from their customers to small shops in urban areas for mass distribution. This has led to more than 100 small scale distribution centers that are rapidly expanding and serve higher quality pre-seasoned and grilled fish to a consumer base usually not familiar with cooking fish or having access to fish. By focusing on the quality of the catfish being grilled and refining the cooking process, the customer base is pleased with the affordability and taste of their new product. In terms of environmental compliance, after the USAID/LAB’s team and the TA Facility worked with SkyFox in developing and implementing SOPs and environmental review and compliance templates, communication between country managers and the SkyFox home office dramatically improved, making them able to pass the environmental requirements and expand operations into four countries.
Failure #15: Hydroponics Africa Not Scaling

Failure: Hydroponics Africa was not on track to meet adoption targets.

Background: The Hydroponics Africa simplified, all-inclusive hydroponics system is built from local materials, requires no user expertise, and uses as many as five different hydroponic methods to help farmers produce maximum yields in small areas, without soil, while using 80 percent less water. By the end of Year 1 of their SWFF award, Hydroponics Africa aimed to reach nearly 600 households with their innovation. In April 2018, with only 150 households served and just a few months left to meet their targets, Hydroponics Africa was not yet on track to reach this goal.

Pivot/Result: Hydroponics Africa completely redesigned the installation process of their all-inclusive hydroponics system and switched to pre-assembly of the product prior to delivering to customers. Using a lighter and less costly materials, the innovator was able to reduce the amount of installation time from four hours to just a few minutes. The new system also was able to retain water for a longer period of time and reduced the labor time required as compared to the previous design.

In addition to revamping the system's installation process to meet the adoption target, Hydroponics Africa implemented a new strategy to market the hydroponics system door-to-door via local marketers. In doing so, Hydroponics Africa was able to reach more customers at a faster pace, which helped the organization catch up to targets. The strategy to utilize local marketers also resulted in additional benefits to the enterprise such as helping ensure that farmers repay their loans on time. Hydroponics is now one of the fastest growing SWFF companies, with more than 3000 units sold in the last two years.

Failure #16: MimosaTEK Can’t Leave R&D Mindset

Failure: MimosaTEK failed to recognize the moment the company needed to shift away from further research and development (R&D) investment and toward aggressive sales of existing product offerings.

Background: MimosaTEK’s solution – an Internet of Things platform for precision agriculture in Vietnam – monitors and analyzes data on farms using sensors to measure soil moisture, rain, wind, and light, and then recommends a precise irrigation schedule to farmers in real time. An end user can activate an irrigation system or greenhouse equipment via the mobile application anytime, from anywhere.

Toward the end of its first year in SWFF, MimosaTEK became concerned that it was not going to hit its sales targets, and therefore it was at risk of failing to remain in the program. Sales were not coming in at the rate the team forecast when the initial milestone targets were set to which they would be held accountable.

Through in-depth discussions between the MimosaTEK team and the SWFF team during a site visit in early 2018, two concerns that had a direct and negative impact on sales were highlighted. First, coming from a strong engineering background and mindset, the MimosaTEK team continued to place priority on further investments of time and financial resources into R&D activities rather than emphasizing sales activities. The company emphasized the development of new products and ideas to enhance existing products. Second, the company did not have a formal sales and marketing strategy and a plan defining month by month sales targets and the process activities required to hit them. As a result, sales lagged well behind the targets originally envisioned.
**Pivot / Result:** With these two major concerns front and center, the MimosaTEK team went about changing its mindset. Senior leadership made a concerted effort to shift the company's focus to sales of existing products rather than continuous development of new products. Part of that shift toward a sales mindset was an emphasis on getting out and listening to the customers to hear what they liked about the products, what challenges they had, and the kinds of services the company could offer that would help address their daily concerns. The R&D team, with the benefit of the voice of the customer, continues to respond with improvements to the existing product.

With the assistance of Sattva, a member of the SWFF vendor network, MimosaTEK developed a sales and marketing strategy with overall and individual sales targets, activities, and responsibilities. The company plans to expand its staffing, bringing on people to focus on the marketing and communications side of the business, to continue that push toward increasing sales.

The company also continues to analyze the feedback from customers and is developing a data service that it will take to the market. The company’s business model in the future will depend less on hardware sales and increasingly on packaging and selling the data collected from the hardware and the insights for farming improvement taken from it.
**Failure #17: Project Alba Challenged By Market Volatility**

**Failure:** Project Alba failed to plan for and design strategies to mitigate the risk of market volatility.

**Background:** To rapidly disseminate water management technologies, Project Alba partners with farmers and provides technical support with no upfront cost and a guarantee to buy 100 percent of harvests at pre-agreed, fixed prices. Project Alba then sells the produce to wholesalers and retailers in the market.

Beginning early in Year 2 of their participation in SWFF, Project Alba began facing challenges related to its fixed price agreements with the farmers in its system. When market prices are low, these fixed price agreements provided the farmers some stability and reduced cash flow uncertainty. However, during periods of higher than usual market prices, the farmers either put pressure on the company to match them or they went outside their agreements with Project Alba to get a better deal directly in the market. Price volatility tends to be higher in the context of a wholesaler, which was the primary buyer of Project Alba’s produce.

**Pivot / Result:** Project Alba recognized the need to sell to a more stable customer base and began looking into higher-end domestic retailers and the export market. The company scaled down operations to focus on a select few farmers that were producing fruits and vegetables of a quality that would be appealing to these customers.

Through a firm in the RVPM, SWFF provided the Project Alba staff with sales training to better equip them with the methods and tools to sell in these new markets. The outcome of this strategy pivot will be better understood in the coming 12 to 18 months.
Failure #18: Reel Gardening Business Model Not Financially Sustainable

**Failure:** Reel Gardening’s objective to empower the poor to be self sufficient in food production and eat healthier by serving them as a primary customer segment failed, causing the team to rethink their business model.

**Background:** Reel Gardening’s core product offering is a pre-packaged paper strip with seeds and fertilizer that can be easily planted at the correct depth. The strip helps growers cultivate vegetable or herb gardens in nearly any region. Originally, Reel Gardening’s business model was based on a partnership with Unilever to sponsor a social impact initiative within South African schools, working with administrators, teachers, and students to use the company’s seed tape to grow and harvest fruits and vegetables that would be used in meals served in school cafeterias. The school children’s success would then be leveraged as a launching pad to sell Reel Gardening’s seed tape to local families.

The company found that there were two major flaws in this model. First, the model depended too much on the Unilever partnership. Without the funding from Unilever, Reel Gardening did not have the working capital to fund the up-front effort to get into the schools. Second, the company learned that the poor in these communities would not be a customer segment upon which Reel Gardening could build a sustainable business. The company wanted to serve poor South African school children and their families with healthy fruits and vegetables that they could grow for themselves. However, the model as originally envisioned did not support a means to accomplish this over the long term. If the company was to survive and achieve its goals, it had to rethink its approach.

**Pivot / Result:** Reel Gardening began to assess ways to adapt its business model and move toward a sustainable, self-funded social enterprise. It focused on identifying new ways to increase initial sales and repeat customers. As part of that effort, Reel Gardening worked with TA Facility support vendor Sattva to develop a “Buy One, Give One” (BOGO) model. Through this model, Reel Gardening donated gardens to 33 schools and 1,200 households. Claire Reid, Reel Gardening founder, said, “We believe the BOGO playbook will help us improve internal operations; provide guidance on implementing, monitoring, and adapting a new financial and marketing strategy; and ultimately increase revenue and social impact.”

The Reel Gardening team made it a priority to better understand its customer segments. With the help of Sattva, the team conducted surveys with online customers and interviewed in-store customers and retailers to get a better sense of the profile of the typical Reel Gardening customer and the value proposition from their perspectives. With these foundational inputs they created an informed sales and marketing strategy and a financial model to test various scenarios and forecast the impact on the company’s bottom line.

With a new focus on selling to target customer segments that were better able to pay for the company’s products, and shifting to a BOGO model, Reel Gardening was able to put itself on sound financial ground and continue to serve and benefit the communities for which it was created. The customer data analysis, sales and marketing strategy, and an effective financial forecasting tool all contributed to Reel Gardening’s ability to achieve break-even approximately two years ahead of the original plan.
Failure #19: ICU Peru and ICU Jordan Partnership Models Didn’t Work

**Failure:** Some SWFF not-for-profit awardees did not have a clear business case or the right private sector partnerships and were not reaching sustainable scale.

**Background:** ICU Peru’s irrigation scheduling system provides farmers and agriculture technicians with direct indications on the best irrigation practices, including helping them know when and how much to irrigate. Through a climate station, the system measures air temperature, humidity, wind speed and direction, intensity of solar radiation, and rain. Those data points are then processed in a GIS platform. ICU Jordan’s Groasis Waterboxx is an integrated planting technology that allows fruits, trees, and shrubs to grow in degraded farm and rangelands. The Groasis Waterboxx surrounds the bases of plants to collect water necessary for crop survival.

In Year 1 of their SWFF award, ICU Peru’s partnership with their Peruvian technology provider came to an abrupt halt, leaving ICU Peru with no equipment to implement their SWFF award. The partnership ended because the new prices of the provider were beyond what ICU was expecting, leading to a pricing structure that was too expensive for groups of smallholder farmers to purchase. As a result of the collapse of its partnership, ICU Peru needed a new strategy. They needed to find a technology partner that had a pricing structure that was affordable for groups of smallholder farmers and adjust to the new technology partner as well as a related sales and marketing strategy.

ICU Jordan encountered similar issues and faced the challenge of building a strong and trusted working relationship with their technology provider partner. To meet the goals of their SWFF award, a successful partnership would require responsiveness, trust, shared objectives, and transparency. ICU Jordan did not feel that the collaboration with their technology provider partner was meeting those criteria. For example, at the last minute, the local partner notified ICU Jordan that there was a delay in the production of the Groasis Waterboxx. The technology provider was not communicating about problem solving or being responsive. ICU Jordan doubted the partner’s commitment to the project.

**Pivot / Result:** As a result of SWFF’s technical support to ICU Peru and its new technology provider partner, ICU Peru was able to pivot its sales and marketing strategy to reach significantly more smallholder farmers in Peru. This resulted in more than 14,000 farmers getting access to ICU Peru’s innovation. New customer segments were reached in regions of Peru identified in the sales and marketing strategy. Most importantly, the revised tiered pricing structure allowed some farmer groups to start by purchasing a simpler version and expand to more expensive versions over time.

ICU Jordan did not experience similar success. This was due to a breakdown in the partnership between the technology provider and the ICU Jordan team. The technology provider did not want to implement the facets of the SWFF-supported sales and marketing strategy. Specifically, the technology provider did not want to modify the prices such that they would be affordable by smallholder farmers and medium sized farmer groups. ICU Jordan chose to terminate its SWFF award and end its partnership with the technology provider.
Failure #20: The Centre for Environment Concerns (CEC) Faced Market Challenges

Failure: The Centre for Environment Concerns (CEC) failed to adequately identify its beachhead market from which to build and scale its SWAR product.

Background: SWAR, a product from CEC, is a sub-surface drip irrigation system that releases moisture when ‘asked’ for by the crop. This underground, gravity-based irrigation system provides moisture to plants at the root level.

CEC knows that its product is versatile and has many potential applications, including customers within horticulture, rural backyard cultivation, urban gardening, landscaping, and forestry and biodiversity preservation. However, in the early stages of taking a product to market, it is essential to identify an early adopter market at a highly granular level, pursue that customer segment, and then expand from there once a successful track record of sales and customer experience is established.

By pursuing a variety of target customer segments from the beginning, CEC’s efforts were spread thin and significant customer traction was not achieved.

Pivot / Result: CEC shifted to focus on customers growing fruit trees. It also redesigned its product from a clay pot that “sweats” and releases moisture to the roots to incorporate a mechanism that senses the roots need for water and releases it accordingly.
Failure #21: Puralytics

**Failure:** Puralytics failed to accurately assess the on-the-ground viability of its product for the end customer.

**Background:** Puralytics pioneered a photochemical technology for water purification. The Lilypad provides both an environmentally safe and effective water treatment solution for cleaning ponds and managing catchment areas. It is reusable and continuously destroys chemicals and micro-organisms and works in man-made ponds and large diameter open tanks.

The company’s original assumptions concerning the footprint of the technology on the farm were not accurate. The technology required a redesign to a two-tier system with a smaller, more contained and controlled water holding tank for the purification phase. Additionally, pond installation was found to be a much more significant cost driver than originally planned. Further, power availability was more limited than assumed. A significant level of electrical power is required to move water through the technology and out into the fields for irrigation. Electrical power was available on farms with existing drip irrigation systems, which significantly limited the size of its target customer segment. The company’s primary customer base was located in regions of Mexico considered to be too dangerous for US citizens to travel.

**Pivot / Result:** Puralytics continued developing a minimally viable product to take to the market. It focused on identifying lower-cost pond construction, gaining a better understanding of price/performance sensitivity of the berry farmers in various locations in Mexico, clarifying power availability in various regions of the country, and training locals to transport, install, and operate the technology in areas where it is unsafe for non-locals to travel.
Failure #22: Aybar and aQysta Face Challenges Working With Government Partners

Failure: For-profit businesses relying solely on government partnerships for wide distribution of the technologies were not able to reach sustainable scale.

Background: Aybar Engineering’s Broad Bed and Furrow Maker (BBM) It is a multi-purpose ridger and bed maker used to drain excess water and conserve moisture in dry areas. The BBM is used at planting time to drain excess water away from crops. Aybar primarily relies on government channels to reach smallholder farmers with their innovation and is dependent on the Ministry of Agriculture’s distribution network to get the Aybar BBM to the farmers. This process was sometimes delayed. Some farmers wanted to purchase the BBM but could not do so due to insufficient local supply. This posed a risk to Aybar as they didn’t know how many Aybar BBMs to supply to the Government until right before the season. This reduced Aybar’s ability to prepare and to reduce costs on its manufacturing inputs.

aQysta’s Barsha pump is a low-cost, innovative solution for smallholder farmers to irrigate their fields without using any fuel or electricity. The hydro-powered pump is easily implemented anywhere there is flowing water nearby and requires little maintenance. In Year 3, aQysta finalized a partnership with the Government of Nepal to more widely distribute the Barsha Pump. This influenced their work positively and fueled growth, but at the same time it made it more challenging from a project management perspective than the innovator had expected. In their project schedule, milestones and targets were not only dependent on aQysta’s performance but also on the performance of their distributors and government.

Pivot / Result: Aybar was advised to pivot away from solely relying on the government for the distribution of the BBM and to build relationships with different distributors. SWFF suggested that if they chose to continue working with the government, Aybar put processes in place to forecast the demand so that they are able to manufacture the BBMs in a timely manner. From its Partnership Toolkit support, SWFF provided guidelines for seeking and establishing partnerships and provided training on how to conduct negotiations with potential distribution partners. Although Aybar sought to uptake the SWFF support and found potential suitable partners, they did not fully diversify their customer segment enough to reduce the reliance on the government for the distribution of the technology. This challenge was exacerbated in Year 3, when, due to lack of budget, regional Bureaus of Agriculture canceled their orders, and Aybar had its lowest sales in years.

With aQysta’s government partnership, the sales volume picked up, the number of people working on the assembly and implementation increased and awareness about the Barsha pump also increased. However, aQysta faced major difficulties in working with the Government of Nepal, including keeping the project on schedule. There was a lot of uncertainty, delays, and lack of transparency along the way. As compared to working with NGOs and other partners, aQysta learned that in working with the Government there was limited communication along with delays in implementation that were very difficult to plan around. aQysta determined that although working with the Government of Nepal helped them reach more customers, they would not rely solely on the Government for distribution of the Barsha Pump.
Failure #23: Water Governance Institute (WGI) and aQysta Face Challenges In Making Technology Affordable To Target Markets

Failure: Water Governance Institute (WGI) and aQysta did not properly research or talk to their customers regarding the cost of their products.

Background: WGI offers an aquaponics farming system that provides much needed nutritional supplements to grow crops and raise fish, thus providing additional income to customers in rural, urban, and peri-urban areas. Initially WGI implemented a “one size fits all” philosophy and only offered one aquaponics unit, at a high cost. This hindered sales as customers did not purchase the units because they were not affordable. This posed a particular problem for low income farmers, who, due to the high cost of the unit, sold the fish feed provided to them by WGI instead of feeding their fish with it.

aQysta similarly priced its hydro-powered water pump at an extremely unaffordable price point (more than US $4,000 per unit), which prevented customers from purchasing it. aQysta also found that costs associated with the units such as transport and installation were important to their Indian consumers and were not included in their final product price. Also, potential financing mechanisms that customers preferred were not provided, which limited pump purchases by not offering payment plans of any sort. A lack of experience with government and distributors also made it difficult for aQysta to appropriately price their pumps.

Pivot / Result: As a response to recommendations from the TA Facility to WGI to better tailor their product pricing with their consumer market, in Year 3 of their program they created an upgraded prototype of a semi-commercial unit that was reduced in price by 67 percent. This unit was designed based on customer feedback WGI collected due to TA Facility assistance. Customers responded with greater willingness to purchase the prototype. TA Facility support was critical in the development of a community-based sales agent approach, which substantially decreased customer acquisition costs.

After many reiterations of the Barsha pump through the suggestion of the TA Facility, aQysta managed to lower their unit price to US $300 per pump, down from approximately US $4,000 due to moving the majority of manufacturing to South Asia. Financing plans and other payment arrangements were researched and tested with positive results. In the last field evaluation report on aQysta’s operations, which was performed by an external evaluator in October 2019, it was found that other funding mechanisms were encouraged in Nepal, where 65 percent of farmers paid nothing for the pump due to government subsidies and the remaining 35 percent paid an average of between US $307 and US $658, financed through their savings, representing a dramatic reduction in costs over the last year.
Securing Water for Food has sourced and invested in a portfolio of innovative solutions that aim to help farmers use water more efficiently and effectively, improve water storage for lean times, and remove salt from water to make more food. Our cohort of innovators are helping people in 30 low-resource countries with tools they need to produce more food with less water.

To learn more about Securing Water for Food, visit www.securingwaterforfood.org.