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## EVALUATION

# Final Performance Evaluation of Securing Water for Food Grand Challenge for Development

**[November 2018]**

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# **FINAL PERFORMANCE EVALUATION OF SECURING WATER FOR FOOD GRAND CHALLENGE FOR DEVELOPMENT**

David Hemson, Ken Caplan, Stephanie Monschein and Nohemi Voglozin,  
Dexis Consulting Group

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## Acronyms

AST	Adaptive Symbiotic Technologies
CEO	Company Executive Officer
DST	South African Department of Science and Technology
EQ	Evaluation Question
FAO	Food and Agricultural Organization
FGD	Focus Group Discussion
FP	Founding Partners
GCD	Grand Challenge Development
IIAC	Innovation Investment Advisory Committee
KII	Key Informant Interview
LOE	Level of Effort
MTR	Mid Term Report
M&E	Monitoring and Evaluation
OECD	Organization of Economic Co-operation and Development
OECD/DAC	OECD Development Assistance Committee
MFA-NL	Ministry of Foreign Affairs of the Kingdom of the Netherlands
QCA	Qualitative Comparative Analysis
Sida	Swedish International Development Cooperation Agency
SOW	Statement of Work
TAF	Technical Assistance Facility
SOW	Statement of Work
USAID	United States Agency for International Development
USG	United States Government
WWW	World Water Week

## Executive Summary

As an innovation and acceleration initiative, the goal of Securing Water for Food (SWFF) is to source, incubate and accelerate high-potential technical solutions and/or business models that find new and sustain existing water supplies as well as lower overall water demands in the food value chain to reduce water scarcity and poverty. SWFF innovators scale innovations designed to support the program's overall goal. The focus areas of SWFF include:

- water efficiency and reuse, especially targeted at the food value chain;
- water capture and storage, in particular in regions where rain occurs at limited times; and
- saltwater intrusion, especially in coastal aquifers or deltas and estuaries.

The SWFF Founding Partners (United State Agency for International Development (USAID), Swedish International Development Cooperation Agency (Sida), Ministry of Foreign Affairs of the Kingdom of the Netherlands (MFA-NL), and the South African Department of Science and Technology (DST)) share the common goal of advancing international development through improved access to sustainable water sources for agricultural applications. Values that are common to the Founding Partners include sustainability, efficiency, sourcing of market-based solutions, gender inclusion, climate adaptation and mitigation, benefit to poor people, and a commitment to avoid negative effects (particularly with regard to water-related services).

The purpose of this evaluation has been to determine the extent to which SWFF contributed to the expected program outcomes and results achieved by innovators across the portfolio during project implementation. The primary focus areas have been around whether SWFF innovations have led to the production of more food using less water, thus ensuring greater food security and raising incomes particularly of poor farmers. The evaluation team has sought to 1) validate the results already reported by SWFF and answer the questions on why and how the outcomes were achieved by innovators, 2) identify the contributing factors particularly as regards to SWFF programming, and 3) uncover the unintended positive and negative consequences that arose as innovators implemented their models.

The performance evaluation concurrently examined SWFF/TAF program efficiency and impact through the lens of the program delivery, the risks taken, and the technical assistance provided. Data collected regarding SWFF operations has been used to assess the results and, within time constraints and as feasible, to compare SWFF's operational efficiency and effectiveness with similar grand challenge funds.

The sources of data for the evaluation have included SWFF annual monitoring data; program documentation; site visits, surveys and Focus Group Discussions (FGDs) with a selected 21 SWFF innovators, 18 of which were able to be visited; and a series of Key Informant Interviews across non-visited innovators, SWFF's programmatic implementation team, the Founding Partners, and members of the Innovation Investment Advisory Committee (IIAC).

A second phase will seek to update the analysis of Round 4 SWFF Innovators and further follow-up the analysis of Rounds 1-3 innovator results.



The present evaluation fully incorporates the Grand Challenge Development (GCD) Results frameworks and has made assessments at three levels: 1) the meta-level, 2) the SWFF program-level, and 3) the awardee-level. These levels roughly correlate to the OECD evaluation categories with Impact and Sustainability linked to the meta-level, and relevance, effectiveness and efficiency generally linked to the program and awardee levels.

The questions from the original Statement of Work (Section C) are presented with evidence and findings on SWFF's Relevance (V.a, A1a), Effectiveness (A1b, B3, B5, B7), Efficiency (B1, B2, B4, B6), Impact (A1c, A1d, A1e, A1h, A2, A3) and Sustainability (A1f, A1g).

A representative sample of 21 of the 40 SWFF innovations in 7 countries was determined on the basis of geographic region, round, status, focus type and number of innovations in a country. This included Bangladesh (Lal Teer, Practical Action); Egypt (ICBA); Ghana, (Ignitia, Skyfox); India (EDR, Adaptive Symbiotic Tech, MyRain, SWAR, Naireeta, WASTE Stichting, NewSil); Kenya (IRK Sunculture, CSDES M-FODDER, ITIKI CUT, Hydroponics Africa); South Africa (Ecorangers, Reel Gardening, CUT); Uganda (Aquaponics Farming, Green Heat). Of the 21 innovations, two were unresponsive and there was insufficient time for one other. Finally, 18 were interviewed in field visits. Surveys were made of beneficiaries in site visits; in 14 surveys 221 questionnaires with impact modules relating to the benefit planned from innovations in infrastructure, service/information technology or products were concluded.

Key Informant Interviews were undertaken with Founding Partners, TAF, innovators and importantly the IIAC. Through participation at World Water Week there were 39 KII concluded adding other current innovations, alumni and graduates not in the sample. The research team gained a comprehensive overview of the entire SWFF Program as well as detailed observation at critical innovations at the site level. The qualitative data was captured and coded in an electronic template and auto-coded in Nvivo; the survey data analyzed in SPSS.

It was found that the Program has **great relevance** in contributing to improving agricultural productivity in the south. There is widespread local need in the south for the innovations and potential for local ownership. The challenge is the ability of the intended beneficiaries (poor, very poor and women) to pay. Innovators have the challenge of helping generate effective demand as well as meeting existing demand from better off farmers for their infrastructure, products or services. Effective demand for the products and services of innovations often depends on locally available micro-finance at low interest rates for poor or very poor farmers. It is recommended that there should be greater southern participation in SWFF. SWFF should consider the most effective ways of managing micro-finance that extends credit to farmers in such a way as not to over-burden either the farmer with debt or the innovator with bureaucracy. This will help build a stronger base of innovations and impact in areas of greatest need.

The Program was found to be **effectively run**, ensuring close attention to detail, and with a hands-on approach with the awardees. The flow of reliable and authoritative information enables innovators and SWFF to “pivot” as new information becomes available. It also helps make difficult decisions where necessary. Although innovators reported good support, a variety of operational obstacles were reported by innovators. It is recommended that SWFF should foster more exchange of information on the barriers which innovators are encountering particularly in

the critical first year and efforts to overcome them. Initiating wider links with related embassy and other programs would further enhance SWFF's effectiveness.

The Founding Partner interaction provides **effective oversight** and direction. They bring complementary agendas to the SWFF partnership, which meets the various needs and capacities of each agency. USAID's effective management of the GC is highly regarded. Greater emphasis should be given to broadening the southern membership base of the Founding Partners in the new initiative and linking these partners effectively to the Program. Such partners could help locate and mentor suitable innovators particularly from the South.

Innovators strongly appreciate the dedicated support of the TA Facility and feel it is **efficiently** set up, organized, and managed, and provides the right kind of support at the right time from the right people. Some 74% of innovators cite the TAF as being decisive in its contributions towards their success and outcomes. Compared to other programs, SWFF is regarded as adding "tremendous" value, specifically in terms of monitoring and evaluation and other reporting capabilities. It is recommended that future SWFF-like programs should further reinforce innovator sustainability/viability, and programmatic (or innovator) learning and adaptive management as well as continuing the reporting on the achievement of primary outcomes. Efficiency would best be served by focusing on strengthening the enterprise in Year 1 (microfinance), moving to scale in Year 2 (additional investment), and consolidating the business plan in Year 3 (viability).

The critical aspect of SWFF is its **impact** on the water efficiency and agricultural productivity of beneficiary farmers. During field visits, 14 surveys were undertaken of beneficiaries in South Africa, Kenya, Uganda, Ghana, Egypt and Bangladesh. The results indicate that SWFF strongly contributed to outcomes: analysis of surveys find (90%) of beneficiaries have improved access to water and (95%) water efficiency directly due to SWFF's innovations. While the inclusion of the vulnerable depends on the business model, very poor groups and women are impacted by innovations. Farmers reported an increase in agricultural productivity through increased yields, a greater number of growing seasons or a diversification of the crops grown, and more efficient use of inputs (labor, time, pesticides, fertilizers, etc.). Resilience to extreme weather conditions is less evident but can be inferred: better adaptation to extremes by increased water access and a reduction in reliance on rainfed farming, targeted and improved irrigation, and better control over adverse climate conditions and pests. Measured impact is crucial to each innovator's credibility. As such, surveys should be undertaken at modest expense in the new initiative to ensure baseline and impact in particular in relation to inclusion (women, poor and very poor), income, and climate resilience. Resilience to weather extremes in agriculture should be included in the design of future innovations as this will certainly increase their impact. Since climate conditions impacting on agriculture are becoming pronounced, express criteria on climate resilience should be included in applications to WE4F.

**Sustainability** was assessed at a meta, program and innovation level. A critical aspect of innovation is use of the data to learn from failure. Round by round innovations are succeeding to meet the needs of the poor or very poor over the years and are gaining in viability, but more could be learned from success and failure. Gender integration is identified as a key social component of sustainability, without growing participation by women in the markets for



innovation and in the management and ownership, innovations will be constrained in impact and hampered in sustainability. SWFF should continue the drive for gender integration accentuating economic and organizational advantages as well as the human rights perspective. It is recommended that, as well as celebrating and learning from success, SWFF should improve its systematic and intentional learning from failure and make this more widely available. SWFF should systematically record and analyze the reasons for failure, in institutional stability, finance, technology, and other dimensions. In relation to environmental sustainability, many innovators expressed strong commitment to green technologies, organic pesticide-free agriculture, and improved soil quality. In addition, a number of products (such as NewSil) contribute to reducing or eliminating fertilizers and pesticides. There is a keen interest among innovators to achieve organic farming through the technologies they promote. Since more governments now are increasingly interested in declaring agricultural zones or entire states as organic, SWFF should consider such a target in selection criteria.

# Evaluation Purpose and Evaluation Questions

## EVALUATION PURPOSE

The primary purpose of this evaluation is to determine the extent to which the Securing Water for Food (SWFF) Grand Challenge for Development (GCD) program contributed to the expected SWFF program outcomes and results achieved by innovators during project implementation and post project implementation. The primary focus areas have been whether SWFF innovations have led to the production of more food using less water, thus ensuring greater food security and raising incomes particularly of poor farmers. The evaluation team has sought to validate the results already reported by SWFF and answer the questions on why and how the outcomes were achieved by innovators, identify the contributing factors particularly as regards to SWFF programming, and uncover the unintended positive and negative consequences that arose as innovators implemented their models. The performance evaluation concurrently examined SWFF/Technical Assistance Facility (TAF) program efficiency and impact through the lens of the program delivery, the risks taken, and the technical assistance provided. Data collected regarding the operations as well as the financial and human resources spent on the SWFF/TAF has been used to assess the results and, within time constraints and as feasible, to compare SWFF's operational efficiency and effectiveness with similar grand challenge funds.

The sources of data from which the evaluation report have been compiled include:

- SWFF TAF annual monitoring data via DevResults and the SWFF awardee database;
- SWFF TAF program documentation;
- Site visits with 17 SWFF innovators;
- For innovators visited, surveys and Focus Group Discussions (FGD) with users/customers of the innovation;
- For innovators visited, FGDs with non-users where appropriate and feasible;
- Applicant survey already conducted by SWFF of three rounds of awardees, finalists, and non-finalists.
- All rounds of innovators that have received two or more years of funding; innovators with one year of funding; and SWFF non-innovators;
- Additional survey data from rejected SWFF proposal applications and finalists to increase sample size of counterfactual;
- Qualitative information gathered from interviews with current SWFF portfolio innovators that the team were not able to visit, non-recipients of SWFF funds, founding partners, TAF staff, members of the Innovation Investment Advisory Committee (IIAC).

A follow-up phase to be conducted by SWFF Dexis Evaluation Team will seek to update the analysis of Round 4 SWFF Innovators and further follow-up analysis of Rounds 1-3 innovator results.

The Evaluation Design includes the initial criteria and indicators for assessing the efficiency and impact of SWFF, which were refined in later discussions with the SWFF Founding Partners, and a proposal for the methodology and sample selection.

## **KEY ISSUES TO BE EVALUATED**

The summary of the SWFF program below sets out the key outcomes anticipated from SWFF and Awardee activities to be evaluated; it is anticipated that these activities will lead to at least 40 projects in 30 eligible countries. The expected outcomes of SWFF were that:

1. At least eight proposals/innovations that improve water availability and efficiency in the food chain have been adopted, brought to scale and/or commercialized by businesses in at least eight developing and low-to-middle income countries (see p 58 of partners PAD);
2. Demand for and availability of these innovations have increased.
3. More food has been produced with less water or more water has been made available for food production in the eligible countries (NL aim in line with NL policy is 25% resource efficiency improvement by the program innovations as compared to standard practice in the implementation countries; Sida aims for 20% resource efficiency improvement by the program innovations as compared to standard practice in the implementation countries).
4. This program will also contribute to increased water-related resilience to climate change (climate change adaptation).
5. Impact indicators include (see SWFF PMEP for specific program indicators and indicator targets):
  - a. Percentage of food productivity / volume water increase
  - b. Volume of water usage reductions through efficiency-increasing innovations in the food value chain
  - c. Volume of water captured and stored for food production
  - d. Percentage increase in agricultural yields/farmed area due to SWFF innovations
  - e. Number of direct customers/end-users of the program (disaggregated by gender)
  - f. Number of innovations adopted, brought to scale, and/or commercialized
  - g. Number of poor people reached (in some cases, individual SWFF awardees had expected outcomes regarding poverty).

In line with the GCD Monitoring and Evaluation (M&E) operational plan, the present evaluation fully incorporates the GCD Results frameworks and will evaluate on indicators at three levels: 1) the meta-level (enabling analysis across GCDs); 2) the program-level (SWFF level); and 3) the awardee-level. These levels roughly correlate to the OECD evaluation categories with Impact and Sustainability linked to the meta-level, and relevance, effectiveness and efficiency generally linked to the program and awardee levels.

## EVALUATION QUESTIONS

This final program evaluation should determine whether or not the SWFF program as a whole led to the production of more food using less water based on the performance of the innovations that SWFF funded. During this evaluation, the evaluator will examine evidence provided to SWFF by SWFF innovators in order to determine the impact of the program around the following questions:

### A. SWFF Innovator's Impact

1. To what extent has SWFF contributed to the outcomes and results outlined by the indicators in the SWFF PMEP during project implementation and post project implementation? In answering this question, the evaluator should take into consideration the following:
  - a. Is there demand and local ownership for the SWFF innovations (individually and across all innovations)?
  - b. Does the SWFF TA overcome organizational capacity barriers for innovators? Were there additional barriers that were not addressed?
  - c. Have vulnerable groups (the poor, women, ethnic minorities) been positively and/or negatively impacted (through income, employment, water/environmental benefit or harm) from SWFF supported innovations? Specifically, has SWFF reduced the number of people in poverty as a result of supporting SWFF-supported innovations and has SWFF increased the number of women benefitting from SWFF-supported innovations.
  - d. Did SWFF-supported projects increase water efficiency/make water more accessible? Did SWFF projects meet their water efficiency/availability targets? Overall, across all innovators, did the program meet the water efficiency/availability targets?
  - e. Did SWFF-supported projects lead to more agricultural productivity and resilience to climate change? Did SWFF projects meet their agricultural productivity targets? Overall, across all innovators, did the program meet the agricultural productivity targets?
  - f. Were SWFF-supported projects environmentally sustainable (i.e., did they provide positive environmental benefit, or did they do more environmental harm than good)?
  - g. Were SWFF-supported projects likely to be financially and socially sustainable by the organizations supporting the innovation?
  - h. What is the balance between public/social engagement and private/public engagement? To what extent have private funds been generated that contribute to the developmental objectives of the program both during and following SWFF awards.
2. How much of the measured change (outcome or result indicator) in the SWFF program can in fact be attributed to the SWFF-supported projects? That is, what portion of the result is not explained by the projects examined by the evaluation? (SWFF recognizes that this is a difficult question to answer, but wants the evaluator to make the best effort to answer this question).

3. To what extent are there differences between the planned SWFF-supported projects and what was actually delivered in Year 1 and then Years 2-3 of the projects?

**B. SWFF Program's Impact and Efficiency**

1. To what extent were the SWFF results to date in balance with the level of effort and resources (funds, human resources including by the FPs, TAF, interns, consultants)?
2. To what extent is the level of effort and resources spent by applicants/innovators in balance with the added value SWFF brings?
3. How effectively have investment risks been managed by the program? (number of failed projects, timeliness of reaction on problems observed etc.)
4. To what extent was the TA Facility efficiently set up, organized and managed?
5. To what extent did the SWFF TA Facility provide SWFF innovators with technical assistance that led to an immediate success (a support engagement is defined as an immediate success if deliverables formally agreed to by the awardee in the work plan were delivered as the awardee expected) and long term success (a support engagement is defined as a long-term success if the product or advice delivered is actually adopted by the innovator and results in recognized value, such as a shift in strategy, an effective partnership, additional funding, new financial forecasting capabilities, or an improved manufacturing approach or product design)? To what extent did the SWFF TA Facility provide SWFF innovators the technical assistance that innovators deemed useful? Did SWFF enable certain (new) (combinations of) expertise to be deployed that would otherwise likely not have been deployed/used (by the individual partners)?
6. To what extent are the administrative costs for managing SWFF above, below, or on par with the cost of similar Challenge funds? (Special Consideration should be made for funds that provide technical assistance to their innovators.)
7. How well did founding partners interact within SWFF and what lessons should be taken from their interactions?

Following the Evaluation Design, in preparing the data collection instruments, the evaluation questions were gathered under the following section headings for ease of use. These section headings have been applied in structuring the report as follows.

<b>SOW EQ</b>	<b>Report EQ question organization</b>
Section C-V.a, A1a	Section 1 - SWFF Program Relevance
A1b, B3, B5, B7	Section 2 - SWFF Program Effectiveness
B1, B2, B4, B6	Section 3 - SWFF Program Efficiency
A1c, A1d, A1e, A1h, A2, A3	Section 4 - SWFF Impact
A1f, A1g	Section 5 - SWFF and Sustainability

## Project Background

As an innovation and acceleration initiative, the goal of Securing Water for Food (SWFF) is to source, incubate and accelerate high-potential technical solutions and/or business models that find new and sustain existing water supplies as well as lower overall water demands in the food value chain to reduce water scarcity and poverty. SWFF innovators scale innovations designed to support the program's overall goal. The focus areas of SWFF include:

- water efficiency and reuse, especially targeted at the food value chain;
- water capture and storage, in particular in regions where rain occurs at limited times; and
- saltwater intrusion, especially in coastal aquifers or deltas and estuaries.

The SWFF Founding Partners (United States Agency for International Development (USAID), the Swedish International Development Cooperation Agency (Sida), Ministry of Foreign Affairs of the Kingdom of the Netherlands (MFA-NL), and the South African Department of Science and Technology (DST)) share the common goal of advancing international development through improved access to sustainable water sources for agricultural applications. Values that are common to the Founding Partners include sustainability, efficiency, sourcing of market-based solutions, gender inclusion, climate adaptation and mitigation, benefit to poor people, and a commitment to avoid negative effects (particularly with regard to water-related services).

The SWFF Founding Partners recognize that often 100 investments are made in the private sector to get one successful innovation to wide-scale adoption. SWFF aims to have at least 10-20% of the innovations it supports reach some level of wider-scale adoption (greater than 10,000 customers/end-users). In support of these aims, USAID (the lead program implementer) has contracted the SWFF Technical Assistance (TA) Facility to provide and/or facilitate TA services and assist USAID in the implementation of the program to help innovators accelerate their progress to reach wider-scale adoption. The Innovation Investment Advisory Committee (IIAC) provides advice on selection of innovators, assessment of progress and determination of benchmarks to make sure that the Founding Partners support those innovations that most likely will achieve success. To date, four calls for proposals have been announced and selection of innovators completed.

Through SWFF, the Founding Partners hope to source and accelerate high potential solutions that will have multiplier effects at various levels of a country's economy. The following three hypotheses are both meaningful and practical measurements of SWFF's development impact potential:

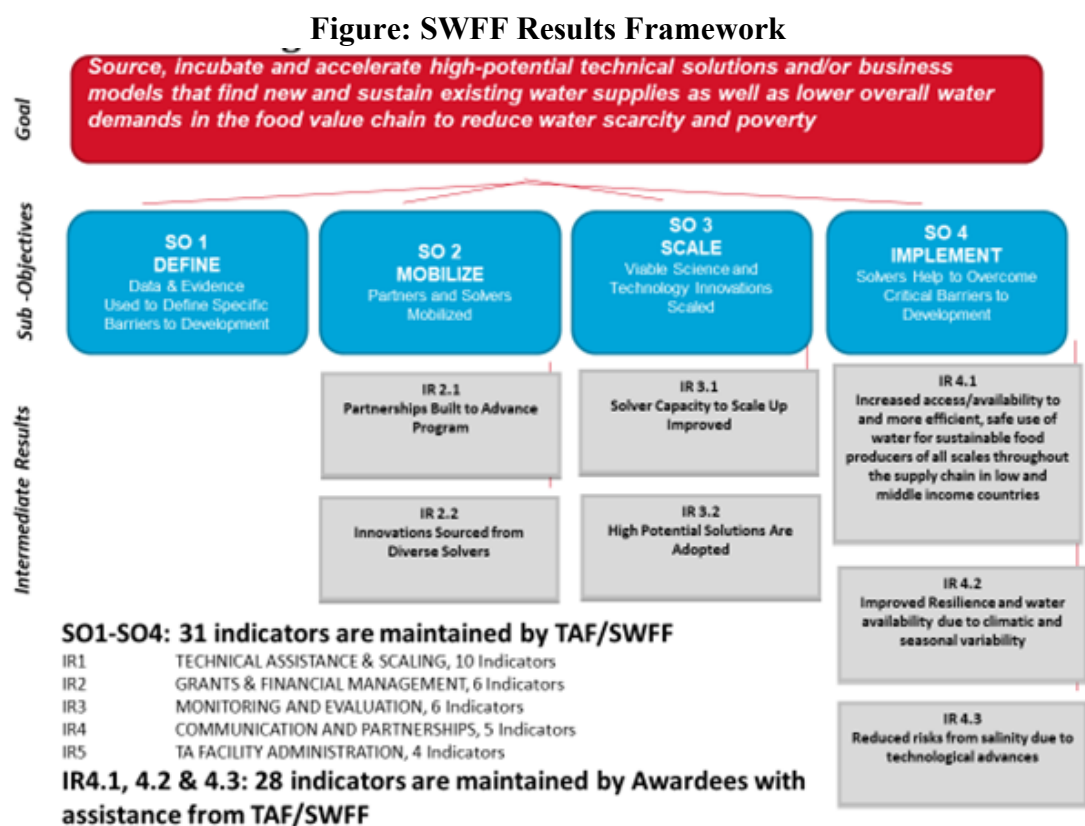
1. By investing in science and technology innovations at the water and agricultural nexus, the pace of development in both sectors will be substantially faster than if we relied on "traditional" development programming alone.
2. By sourcing technologies and business model innovations that have already demonstrated potential at the pilot stage, Tier 2 SWFF-supported innovators have greater likelihood of being brought to scale (reaching at least 1 million people) and Tier 1 SWFF-supported innovators have a greater likelihood of reaching wider scale adoption (reaching more than 10,000 customers/end-users).

- By investing in acceleration-oriented technical assistance and facilitating partnerships, we will substantially increase the likelihood that innovators will have the knowledge, tools, and resources to bring their innovations to scale.

The SWFF program has aimed at supporting at least 40 projects in 30 eligible OECD/DAC 1-4 countries.

## Evaluation Methodology and Limitations

The original Results Framework sets out a single Objective and four Sub-Objectives as shown in the graphic below and sets of related Intermediate Results. The strategic objectives Define, Mobilize, Scale and Implement describe the key activities within SWFF and the related indicators and milestones of progress.



This is primarily a performance evaluation which focuses on and measures these results or outcomes and impacts at two levels: firstly, that of the strengthening of innovations through support from SWFF/TAF and secondly, by these scaled up innovations achieving measurable water efficiency and increasing food production.

Dexis has been encouraged to work collaboratively with the Triple Line evaluation which is running concurrently and notes the Innovations interviewed, provisional findings and recommendation. This strengthens the counterfactual to SWFF in other GCDs and provides access to comparative data.



There are a number of levels at which attribution for outcomes and impact is possible: firstly, that of SWFF/TAF in giving resources and providing support for innovations/awardees, secondly by the innovations themselves, and thirdly by support from partnerships and government and other agencies. These distinctions demonstrate the complexities of attribution which is considered not separately but in combination as contributions in achieving competence in the management of innovations and impact from the application of the technology embodied in the innovation. The Outcomes Harvesting approach which does not start from work plans or from a theory of change is open to retrospectively identifying the full range of drivers after identifying and validating outcomes.

The familiarization with these procedures, full access to this data and the evaluation methodology itself has been discussed with SWFF. The focus of Outcomes Harvesting is on the substantiation of Outcomes and this is found, in part, through the validation of data.

### **Outcome Harvesting Approach**

The methodology suggested in the SOW is that of Outcome Harvesting, which is an approach in which evaluators identify, formulate, verify, analyze, and interpret 'outcomes' (in summary, substantiate outcomes) in programming contexts where relations of cause and effect are not fully understood. This is particularly suitable for this evaluation where activities, responsibilities, and outcomes tend to overlap between SWFF and Awardees in the specific details of each innovation.

The primary source of information will be through the KII with TAF, FP, IIAC and Innovators followed by sources which provide other perspectives on Outcomes which provide triangulation such as a) the disparate views as captured in the KII and b) the beneficiaries (in FGD and surveys) who provide a perspective from below. The analysis of this data is set out in the Data Analysis Plan.

### **Selection of Innovations and Sites**

The selection of innovations was undertaken with key criteria (including sites not previously visited) agreed with the client. The sampling frame for most of the data collection and analysis, in particular the meticulous review of performance monitoring data, existing and proposed survey data, interviews, and desk review will consist of the entire universe of innovators.

The team developed a sampling universe in Excel in which all innovations from the SWFF program, including alumni and graduates, are listed. Across the columns the site selection criteria were found and entered. The team then ranked the innovators using a sort with multiple levels of criteria in order of importance, e.g. if geographic region was the most critical data cut, followed by country, focus area, round, visit status and then other available data on criteria.

The tables below indicate the “demographics” of the sample; although the SOW required eight site visits the multiple sorting identified the following 20 innovations as the sample, to which Egypt was added as it had not previously been visited. The tables below provide the characteristics of the sample. In terms of the current status of projects, 13 of the sample are current, five are Alumni and another three are Graduates. The Alumni are somewhat over-represented in selection which partly compensates for under-representation in responses to the Post Awardee Survey.

**Table 1. The Sample: Current Status**

<b>Project Status</b>	<b>Selected</b>	<b>Others</b>	<b>Grand Total</b>
Alumni	5	9	14
Current	13	2	15
Graduate	3	8	11
<b>Grand Total</b>	<b>21</b>	<b>19</b>	<b>40</b>

The sample also provides effective representative of the three levels of Rounds undertaken in SWFF.

**Table 2. The Sample: Rounds**

<b>Rounds</b>	<b>Selected</b>	<b>Others</b>	<b>16</b>
<b>Rd. 1&amp;2</b>	<b>10</b>	<b>8</b>	<b>18</b>
<b>Rd. 3</b>	<b>9</b>	<b>3</b>	<b>12</b>
<b>Rd. 4</b>	<b>3</b>	<b>7</b>	<b>10</b>
<b>Grand Total</b>	<b>21</b>	<b>19</b>	<b>40</b>

Although 21 Innovations were selected, the budget provided for 8 sites to be visited; but rigorous field visit planning resulted in 17 innovations being visited and surveys conducted on 14 sites. The sample amounts to 21 out of the 40 Innovations<sup>1</sup> on the Awardee Database, a reasonably representative selection from the continents and focus areas.

**Table 3. The Selected Sample: Country and Innovations**

<b>Country and Innovation</b>	<b>Country total and status</b>
<b>Bangladesh</b>	<b>2</b>
Lal Teer	Visited, survey conducted
Practical Action	Visited, FGD
<b>Egypt</b>	<b>1</b>
ICBA	Visited at a distance <sup>2</sup> , survey conducted
<b>Ghana</b>	<b>2</b>
Ignitia	Visited, survey conducted
Skyfox	Visited, survey conducted
<b>India</b>	<b>7</b>
EDR	Not visited

<sup>1</sup> One of the innovations, CUT is based in South Africa but has a subsidiary in Kenya.

<sup>2</sup> The visit to the sites was undertaken, on advice, by the local consultant.

Adaptive Symbiotic Tech	Not sufficient time to visit
MyRain	Not responsive
SWAR	Visited, survey conducted
Naireeta	Visited, survey conducted
WASTE Stichting	Visited, survey conducted
NewSil	Visited, survey conducted
<b>Kenya</b>	<b>4</b>
IRK Sunculture	Visited
CSDES M-FODDER	Not responsive
ITIKI CUT	Visited, survey conducted
Hydroponics Africa	Visited, survey conducted
<b>South Africa</b>	<b>3</b>
Ecorangers	Visited, survey conducted
Reel Gardening	KII, recent evaluation
CUT	Visited, survey conducted
<b>Uganda</b>	<b>2</b>
Aquaponics Farming	Visited, survey conducted
Green Heat	Visited, survey conducted
<b>Grand Total</b>	<b>17 out of 21 sites visited</b>

### **Data Collection: Qualitative, KII**

There were initially 24 proposed Key Informant Interviews with persons selected on the following criteria: leading FPs, DST, IIAC from South, most experienced IIAC (generally participating in three rounds) and gender dimensions. Fortunately, participation in World Water Week (August 23-31, 2018) supported by SWFF offered an opportunity to undertake considerably more KII than initially planned and a total of 39 were completed (See Annex 6 Data Collection Instruments).

A well developed and appropriately structured instrument aligned to Nvivo was prepared. This provided the instrument for data capture during the KII and FGDs and, in Nvivo, led on to auto-coding from a set of pre-codes prepared for all major questions.

### **FGD and KII Preparation and Data Capture**

A facilitator fully familiar with the language of beneficiaries moderated the FGD sessions together with the team member. Each session was recorded and the Consultant indexed discussions to identify key sections of an interview for full transcription for potential reporting to give concrete expression to new insights, key trends and common assumptions.

### **Data Analysis Plan**

In undertaking Data Analysis, the team has given priority to the computation of respondent-assessed outcomes, thematic outputs from KII, the ranking of issues and innovation priorities, and findings made from the analysis and structuring of the qualitative data. The two processes of qualitative and quantitative analysis have been drawn on simultaneously and interactively.

### Qualitative Analysis

Qualitative data sources include the KII which provide a range of expert opinion from the TAF itself, in the FPs, the IIAC and the Innovators. The KII instrument was designed to incorporate the Outcome Harvesting approach to elicit responses on the identification and self-definition of outcomes, of retrospective causation for these outcomes and substantiation of both these Outcomes and Drivers within and beyond the SWFF framework.

The KII instrument was designed and formatted in Word to provide for the selection of pre-coded attributes and auto-coding in Nvivo to lead to rapid data capture and analysis. The question guide was developed into a Nvivo aligned instrument, tested, reviewed and improved. While the use of Nvivo was initially more time consuming it did enable rapid data capture and auto-coding is leading to and more rigorous analysis and quicker reporting.

### Quantitative Analysis

With data provided from innovators the team planned the field visits to identify the universe of beneficiaries/customers/end users from which to draw a sample for surveys, focus group discussions, observations/site visits, and interviews. This provided a purposive sample stratified by region, site, and gender and further stratified by availability.

Analysis was initially made in Excel to establish the frequencies, etc., and the metadata compiled (such as number of responses by project status, open-ended responses requiring coding, etc.). Data quality in the wider sense is central to the evaluation and metadata files have been assembled. The Dexis Agricultural Expert reviewed the drafts of KII and questionnaires were customized to each innovation to ensure that no gaps remained on agricultural aspects. She gave particular attention to measures of agricultural production and to the types and forms of interventions. She examined the types of crops and their significance to households; for instance: whether crops are subsistence or cash crops and whether the intended intervention is for a partial or greater aspect of agricultural production.

The details of the surveys of beneficiaries are presented below:

**Table 4. Surveys of Beneficiaries by Innovation and Country**

#	Innovation	Country	Respondents	Male	Percentage	Female	Percentage
1	Aquaponics s(WGI), Rd 3	Uganda	10	3	30%	7	70%
2	CUT ITIKI, Rd 4	Kenya	4	2	50%	2	50%
3	CUT, Rd 4	South Africa	23	5	22%	18	78%
4	Ecorangers, Rd 1	South Africa	27	21	78%	6	22%
5	Green Heat, Rd 3	Uganda	8	4	50%	4	50%

6	Hydroponics Africa, Rd 3	Kenya	13	2	15%	11	85%
7	ICBA, Rd 1 (note below) <sup>3</sup>	Egypt	24	24	100%	0	0%
8	Ignitia, Rd 3	Ghana	14	8	57%	6	43%
9	Lal Teer, Rd 3	Bangladesh	25	20	80%	5	20%
10	Naireeta, Rd 3	India	25	1	4%	24	96%
11	NewSil, Rd 3	India	10	8	80%	2	20%
12	Skyfox, Rd 4	Ghana	10	8	80%	2	20%
13	SWAR, Rd 3	India	6	6	100%	0	0%
14	WASTE, Rd 4	India	22	5	23%	17	77%
<b>Total</b>			<b>221</b>	<b>112</b>		<b>95</b>	
<b>Average</b>			<b>16</b>	<b>9.3</b>	<b>57%</b>	<b>7.9</b>	<b>43%</b>

Despite a compressed time period for field visits to seven countries, South Africa, Kenya, Uganda, Ghana, India, Egypt and Bangladesh 14 surveys were undertaken which included 221 respondents. The surveys have, on average, 16 respondents and (as designed) were reasonably gender balanced with women constituting 43% of the total sample.

## Risks and Limitations of the Evaluation Design

The evaluation team has been conscious of the risks and limitations associated with delivering an evaluation of the quality expected by the Founding Partners and the wider SWFF community. To overcome these risks and limitations, the team has drawn on the considerable strengths of the team members with two having significant experience in the water sector and one as a well-qualified agricultural expert. Team members have brought significant experience in a number of SWFF portfolio countries including Kenya, South Africa, Ghana, Bangladesh and India. One member of the team has had extensive experience with SWFF itself in the MTR. All have had solid experience with multi-country and multi-level evaluations.

The team has brought considerable experience in the compilation of datasets and data analysis using Excel extensions and experience in qualitative data capturing and analysis using Nvivo software.

The team recognizes the following risks and limitations that may have affected our ability to draw conclusions with high levels of confidence on some aspects of the program:

### Risks and Mitigation Measures

<b>Risks</b>	<b>Mitigation Measures Taken</b>
Insufficient face-to-face time with innovators in country due to scheduling challenges.	While the time frames were relatively tight in terms of innovator visits, efforts were made to connect with innovators by Skype/phone and email in instances where follow-on questions could not be addressed due to time limitations for face-to-face meetings in country. Stockholm World Water Week (26-30 September) also allowed a significant further opportunity to meet with most of the innovators that had been visited (with the exception of Egypt). Stockholm also allowed for an opportunity to attend SWFF sessions and to organize key informant interviews with all remaining innovators as well as with the

<sup>3</sup> Note: In relation to ICBA, a focus group discussion was held with 3 women in Cairo.

	Founding Partners and members of the IIAC and the TAF.
Insufficient access to customers and non-customers to understand the success factors for the innovations.	Efforts were made to plan as far in advance with the innovators to impress upon them the need to meet with as many customers and non-customers as feasible within the allotted time. Time and logistical limitations did prove challenging, although the team did meet the target set of speaking directly with 200+ customers of SWFF innovations and well over 50 non-customers.
Ultimately there were three different team members travelling to visit innovators potentially resulting in slightly different approaches and different interpretations of the data presented.	<p>The team was careful to produce the survey protocols in advance in such a way as to ensure that it suited as many innovators as possible. Contact among the team between rounds of visits was also critical to cross-reference and ensure that the team's approach was as consistent as possible. The Key Informant Interview protocol was based on the questions noted in Section C with clear indications of those questions that were for innovators and customers as well as for TAF, IIAC and FP interviews. Well-rehearsed methodologies were shared for Focus Group Discussion and surveys. A matrix was designed for uniformly capturing information from the desk review.</p> <p>Conducting the visits in two rounds (3 countries each) allowed for an interim period to compare notes and further refine the approach.</p> <p>While every effort was made to harmonize the approach in advance, some differences in interpretation have only become apparent since the visits have been completed and comparisons and cross-checks have been made. The team was able to spend some time in Stockholm and subsequently clarifying these points.</p>
Data collection methods needed to be consistent across visits.	The team had not fully anticipated the challenge of working through Fulcrum to collect data in the field and needed to shift to ODK and then to Kobo (which is fully compatible with ODK). Although challenging while in the field, the team was able to consolidate the approach with the support from local consultants.
Agriculture expertise may not have been consistently applied across all visits.	The team has made a concerted effort to engage the agriculture specialist both at the macro level to review the surveys and KII protocols but then also to review the findings through a metadata analysis of the ODK/Kobo reports. Efforts were also made by each travelling team member to enlist the guidance of the agriculture specialist to prepare for his or her visit. This involved sharing marked-up SWFF documents in advance to clarify aspects around agriculture to be reviewed while the team member was in country. Local consultants were also brought in with specific expertise in and familiarity with the agriculture sector in country.

### Limitations and Mitigation Measures

Limitations	Mitigation Measures
The challenge of ensuring that sampling is sufficiently representative of the portfolio.	Efforts had been made to ensure that the information being collected during visits has been sufficiently diverse to cover as many different kinds of interventions across as many geographies within the portfolio as possible given the time and funding constraints. While the team met the target of 200 customers of SWFF innovations, indeed in some instances, the sample size was more limited. The team member then needed to approach the task in the sense of confirming that the SWFF data makes logical sense based on the information collected in country rather than validating through a significant sample size. (It should be noted that in some instances, like with Ignitia, a

	significant sample size would range in hundreds to thousands.)
The comparability of data across a diverse group of innovators	This remains a generic challenge for SWFF. The team has been mindful of this at all stages of the analysis. The careful coding of the KII protocol and the design of the surveys has been critical to ensuring as much comparability as possible.
Clarity on contribution / attribution with regard to SWFF's acceleration support.	The team will work to triangulate from multiple sources in assessing contributions and proportional contributions from many points of support.
The comparability across different Challenge Funds in terms of costings will prove challenging as they each operate in different ways and offer different support. Finding the right comparators may not be straightforward.	SWFF recognizes that this will have been a challenge and the team has liaised with TripleLine to help clarify approaches to this issue and sought advice from policy makers who have experience in a number of Challenge Funds.

## Findings

### Section 1: Relevance

**Question 1: Technically, what types of innovations have been supported? How many innovations have been awarded funding? What are the basic demographics/ descriptors of innovators? (H2)**

SWFF has the objective of helping farmers around the world to grow more food with less water through enhanced water storage and more effective irrigation practices, improved soil quality, and the use of saline water. SWFF does this by ensuring that entrepreneurs and scientists behind groundbreaking new approaches are getting the support they need to apply and expand their solutions around the world.

In analyzing the evidence from SWFF data and from key informant interviews, we have explored the business goals and social objectives of the innovations, their types in terms of outputs, locality as an innovation and the demographics of management. These include an analysis of SWFF's portfolio by sectors, outputs, social engagement, locality, in for-profit and non-profit; all with a view to understanding how SWFF spreads risk and ensures potential social and agricultural returns.

The overwhelming preponderance of innovations has been in Water Efficiency and Reuse followed by Water Capture and Storage. The lack of applications for support from innovations having the objective of agricultural production in saline conditions led to the special call with 2 winners in Round 2 to make up this deficit. The number of innovations accepted into the program in each Round has gradually declined from 16 in Round 1, 12 in Round 3 and 10 in Round 4. Although there has been a downward trend, the locality and orientation of innovations has changed in favor of the south and with more of an emphasis on meeting the needs of poor or the poorest farmers and particularly those of women farmers.

There are significant differences technically between innovations; some are capital intensive with outputs such as a standalone water infiltration infrastructure, others provide a readily sellable product such as treated seeds, and others provide a service, usually an information service. Among the 23 innovators interviewed, 7 were infrastructure based, 8 were product based and a further 8 provided a



service. The character of output logically affects the ability of farmers to invest and thereby innovators to scale up; those with expensive infrastructure being slower than those with relatively inexpensive additional units with information technology customers.

SWFF prioritizes interventions in the south where there is the greatest need and potentially the greatest demand for the innovations it supports. Northern innovations have been encouraged to explore markets and establish subsidiaries in the south and local innovations (those based in the country or continent) are prioritized. This strategy has been implemented Round by Round as the number of local innovations indicates.

**Table 5. Locality of innovations supported, Rounds**

<b>Rounds</b>	<b>Local</b>	<b>Non-local</b>	<b>Grand Total</b>
1	4	12	16
2		2	2
3	6	6	12
4	7	3	10
<b>Grand Total</b>	<b>17</b>	<b>23</b>	<b>40</b>

**Source: Awardee Results database**

In Round 1, most of the innovations supported were non-local to the south with 12 compared to 4 local innovations. By Round 3, this had been adjusted to 6 local and 6 non-local innovations, and by Round 4, the 7 local innovations were in a majority compared to the 3 non-local innovations. With one exception, all innovations in Africa are now local.

This strategy is strongly supported by the Founding Partners particularly in support of local innovations.

There is a clear shift to companies registered in the south. Any American or Swedish company can be registered in the south, but Sida is keen to see more indigenous companies particularly with women in leadership positions.

A number of northern innovations have risen to the challenge with the encouragement of SWFF to develop local partnerships to explore and expand these markets. One of the Round 1 Graduate mentioned they have a local partner with extensive contacts to help treat and market their product.

While there has been extensive discussion and policy taken on gender integration, most of the existing innovations are male led. Among 21 key informant interviews, the SWFF portfolio is represented by 15 male led innovations with 4 women led innovations and 2 institutions which are led by women and men. The SWFF leadership is well aware of this setting and from initially nudging innovations is now intervening actively to encourage the necessary shifts in gender balance at all levels in the enterprise. Gender training and assessments are also helping innovators to recognize the business benefits of considering gender more effectively in their business model and approach to their market.

The social character of the innovation could be a determinant of its commitment to poverty alleviation and the inclusion of women, vulnerable ethnic groups and the very poor. From the 21 interviewees were represented 13 innovations which were businesses ventures from inception and the remaining 8 described their innovations as dominantly focused at least initially on social engagement with a non-profit orientation.

Another measure of social or business orientation is recorded by awardees. Of the 40 innovations a similar proportion to that reported in the KIIs is found; a larger group of 25 for-profit and a smaller group of 15 non-profit innovations.

**Table 6. Profit or Non-profit Innovations, Rounds**

<b>Rounds</b>	<b>Non-profit</b>	<b>Profit</b>	<b>Grand Total</b>
1	5	11	16
2	2		2
3	5	7	12
4	3	7	10
<b>Grand Total</b>	<b>15</b>	<b>25</b>	<b>40</b>

The character of innovations has gradually changed over the Rounds. In Round 1 just under 69% were for-profit innovations; in Round 3 just over 53% and in Round 4 70% are for-profit innovations. Generally, some two-thirds of innovations are initiated as companies while a third of successful awardees maintain a non-profit orientation even while searching for markets and funding to scale up. Such analysis does, however, not include changes over time such as the migration of innovations from non-profit to for-profit enterprises such as in the case of CUT, CSA-MNP, World Hope and other innovations.

The innovations actually include a wide range of character. One innovation reports it is “quite heavily supported by a national government” and not open to the private sector. Another was pioneered by an analytical chemist who received other funding before that from SWFF. Yet another was founded by an economist who created four innovations in a variety of fields. And a further innovation was founded by an educationalist who has lectured in Britain and America and has eight innovations to his name. Finally, in the illustration of variety in founders and innovations is a former trade unionist who is dedicated to eliminating poverty throughout his country and the world.

Unlike other Grand Challenge Funds, SWFF has a relatively modest number of current and graduate innovations attaining the status of Tier 2s; these include Reel Gardening (R1), Skyfox (R4) and Ignitia (R4). The additional funding attached to Tier 2 status is dependent on an innovation being structured for market growth (with the probability of being brought to scale to reach at least 1 million people) with a team, financing, and partnerships to facilitate that growth. A clear financial model is needed to provide evidence that non-grant money is being received in the form of debt/equity financing. All Tier 2 innovations should be financially sustainable without SWFF funding. The Tiered system enables more funding to Tier 2 innovations and this group is certainly benefiting financially more than the Tier 1s.

This does not appear to be “crowding out” other innovations (although there is a smaller number of innovations in Round 4).

**FINDING:** SWFF has successfully transitioned to having a majority of local innovations. The balance between male and female led though remains heavily in favor of male-led enterprises.

**RECOMMENDATION:** Going forward, SWFF should continue to encourage women led innovations to apply and make the proportion of women in management a criterion for selection to provide additional points in the selection process.

**Question 2. Is there demand and local ownership for the SWFF innovations (individually and across all innovations)? (H2)**

As noted in other parts of this report, the portfolio of innovations is too diverse to draw sweeping findings around some aspects. With regard to local ownership and local demand, as noted above, of the 40 awardees, 17 are local innovations established by country nationals, i.e. locally registered, locally owned, and locally staffed. The narrative below seeks to unpack the different aspects of being “local” for SWFF.

SWFF has moved from predominantly more Northern applicants and awardees in the initial Rounds to a more balanced Northern-Southern applicant and awardee pool (as noted above). That said, there was a sense from some interviewees that the program is not yet grounded in the South – i.e. that there is insufficient Southern participation across the board. Efforts to redress this have been made in terms of the composition of the IIAC, seeking more active engagement from South Africa’s Department of Science and Technology as a Founding Partner, and efforts by the TAF and others to find channels of advertising SWFF to more southern audiences.

It is recognized that identifying Southern innovators who can apply for this kind of funding is not always straightforward due to language constraints, a lack of familiarity with or ability to navigate the application process, an inability to muster the arguments in sufficient detail to pass the initial screening stages, and other related challenges. These are all acknowledged by SWFF and efforts have been made to try to overcome them while recognizing the limitations of a small SWFF/TAF team with not a lot of spare resources. That said, this challenge further suggests the need to engage Southern governments, reach out to Founding Partner and other interested embassies, identify NGOs operating in this space, and identify other channels to expand the pool of applicants from the South even farther.

In terms of “**TA support providers**”, there has been a move towards more local provision, often on the basis of cost considerations. Innovators also seem to appreciate technical assistance from TA support providers who, where possible, are sufficiently familiar with the local context and thereby can make more tailored recommendations.

In most countries, there needs to be local registration and even some designated share of **local ownership** for foreign enterprises. Whether this translates into genuine local ownership and whether local shareholders have any influence on the direction of the company has been difficult to gauge for “northern” awardees.

For some innovators, finding skilled **local staff** has been challenging (either because the skillsets are not readily available or because people with the right skillsets are already working for large companies). SWFF TAF has provided support in some instances (Ignitia, for example) to sharpen their approach to hiring local staff. That said, it was noted in numerous conversations and in the sessions at the recent SWFF un-conference that the awardees remain very small firms for the moment and there is not a lot of spare cash and scope for expanding the employee base. The competition is fierce in many SWFF local economies for talented staff who can manage accounts, effectively reach out to farmers and engage with other types of stakeholders, or help advance the business in other ways. Indeed, for most of these organizations, individual staff members need to fulfill a wide variety of roles. Interestingly, innovators noted in the recent un-conference in Stockholm that in many instances applicants for positions are looking for clear and unequivocal job descriptions with defined targets and roles. The mindset of many applicants is generally not that of wanting to make a contribution to the enterprise across a wide range of functions in a small organization. (Several also noted the challenge of the transition period as the company grows and requires more specialized skills and staffing.) All that said, a number of innovators have a stated goal to ensure a greater percentage of local staff in senior positions, like that of Project Alba to “reach 75 percent Cambodians on the senior management team”.

In terms of **local production**, for some innovators like WASTE, construction inputs using locally sourced raw materials required further innovations to ensure sufficient quality and viability of the product. A number of northern innovations (such as AST and NewSil) are locating production facilities in the countries in which there are expanding markets.

With regard to **local demand**, for the innovation by farmers, this is reliant on a range of factors that revolve primarily around level of risk and price. Poor farmers are less able to take significant risks particularly for innovations that involve major investment in land or infrastructure. There was some suggestion that local demand could have been fostered further through connections to other related programs from embassies or by working with governments. For most innovators, there appears to have been limited or no contact between them and Founding Partner embassies / ministries. Connections to NGOs who also work with farming communities (or even tapping into synergies between innovators in the same country like SkyFox’s work with fishponds and farmers and Ignitia’s weather messaging service) could also make for meaningful partnerships. There is thus a perception that engaging more at this level would help innovators to overcome certain barriers or to gain greater uptake more quickly.

Ultimately as a multi-donor fund, the connection to SWFF has helped to extend innovators’ credibility at the local level. In some contexts, this has also proved challenging as the expectation is that the innovator was there to provide more traditional development support at no or low cost (i.e. “people didn’t understand why we would sell something while having support from USAID”).

**FINDING:** There is widespread local need in the south for the innovations and potential for local ownership. The challenge is the ability to pay. Innovators are generating effective demand as well as meeting existing demand from better off farmers for their infrastructure, products or services. The ability to pay in the local context often includes the availability of micro-finance for poor or very poor farmers.

**RECOMMENDATION:** SWFF should consider the most effective ways of ensuring effective demand for innovations by improving the availability of locally available micro-finance at low interest rates for poor or very poor farmers. There should be greater southern participation in SWFF.

## Section 2: Effectiveness

**Question 7. To what extent did the SWFF TA Facility provide SWFF innovators with timely and appropriate technical assistance that led to the creation or enhancing of a viable business centered around an innovation that saved water / generated more agricultural product?**

Alongside financing, the SWFF design essentially is to provide carefully selected innovations with targets and milestones to stretch their capacity, provide the backup support necessary and encourage success at a higher scale. The question is whether the Program achieved sufficient effectiveness to achieve this objective. The data from interviewees analyzed here relates to questions on whether the target and reporting system created a viable business, how the accelerator or TA support provider support worked, whether it was effective, and responses on field visits.

The TAF support to innovations is strongly appreciated. The overwhelming majority of innovators reported that the TAF support was timely and appropriate with very few reporting that it was not. This minority was concerned about support not always available when needed or TA support providers not being the best to their purpose, an issue which is further explored below. With this exception the interviewees give high approval of TAF support, either because it was comprehensive from the beginning or helped an innovation overcome particular obstacles.

They helped us with market research, a marketing and branding strategy, environmental impact assessment, and some work on our business model for turning this into a viable business instead of a social enterprise. The support has been incredibly helpful.

Other innovators went beyond identifying support from TAF alone to finding that SWFF support opened up an environment in which free-ranging relationships of high value could be developed either within the SWFF network or beyond.

We've learned so much from SWFF... the exchange with all the other innovators has been huge and hugely valuable for somebody who is coming new into this space, and learning how to run a business that is socially minded.

SWFF support systems are favorably compared to others that innovators have encountered.

Despite its demands on innovators' time, the targeting and reporting system is found to support a viable business. A strong majority felt that the SWFF system helped (a few: or somewhat helped) them to create a viable business; only a small minority felt this unhelpful. Reservations appeared to arise from the complexity of demanding reporting or to be linked to the appointment and management of TA support providers. The majority view is well represented by the following:

Right from proposal framing to setting targets, budget preparation, HR modules and other such things, we got very good support.

SWFF has an extraordinarily rigorous approach to funding innovations and appears (according to a number of interviewees) to be the only agency providing close technical support to awardees throughout the funding period. Such support accompanies a demanding monitoring and reporting system to measure

progress, ensure the effectiveness of the innovations and the overall program. This makes for a complex system which has costs according to a founding partner.

Although from reports from innovators this appears effective, I'm not sure that the intense target setting with milestones is the best approach.

This individual regarded some of the depth of monitoring and evaluation as a deadweight on innovators. A few innovators had an ambiguous attitude to reporting; while acknowledging the long-term value of reporting on targets and finances also finding that these activities are burdensome.

Site visits are warmly welcomed and increase reciprocal interaction. The site visits help personalize interaction and clear misunderstandings. SWFF is an unusual program in combining well developed reporting systems with personal exchanges and relations between the administration and innovations and among innovators themselves. The site visits are an important activity combining personal exchanges as well as ensuring the priorities of clear understanding of the detail of targets, monitoring data collection and data validation. These visits enable close attention to overcoming crucial obstacles as well as establishing close rapport with innovators. The Founding Partners regard the direct exchanges with farmers over water and productivity as confirming results and providing "hands-on" credibility to the Program.

Equally the innovations value these exchanges:

We learnt a lot ...and based on their suggestions, we shaped our activity and style and we are grateful to the team for their support. Things changed a lot after their visit ... We had lost precious time before their visit.

From TAF's perspective these visits enable them to help innovators have the right pitch to funders and other agencies:

SWFF gave them the chance to bring an innovation to light that wouldn't have been; [by providing opportunities for] storytelling and projecting themselves.

The interaction with TAF is also credited with opening links with other SWFF innovators and learning from their experience:

We have regarded ourselves as an NGO and didn't know anything about being an enterprise...what I have learned from other innovators has been hugely valuable, and especially important for somebody who is coming new into this space, and learning how to run a business that is socially minded. So that has been huge.

A number of innovators in India, South Africa, Egypt and other countries mention government, at a number of levels, as their preferred or natural partner. In so doing they are looking to establish viability through winning awards and contracts and considerably bigger markets.

We are planning to document our work and write to ministry of water and sanitation at Delhi, where we have good rapport. If we make good presentation to them, they may try to adopt it at

All India level. At state level we will meet minister rural development and persuade them to take this up. As we are working with Town panchayat, it is very easy to lobby and upscale the model with the support of the government.

In terms of government relations and potential contracts, it seems that SWFF is advisedly not active in opening relationships although this may be possible through USAID which has formal relationships with government in the development field.

**FINDING:** SWFF reporting system is understood by innovations as helping them advance towards viability and the support system is widely acknowledged as critical to innovation viability. The constraints of working in a tight system of planning, targeting and reporting are less than the expansion of horizons and capacity development. The country visits are highly appreciated and can lead to the clarification of key aspects of targeting and reporting.

**RECOMMENDATION:** None

**Question 7a. Does the SWFF TA support help the awardee to overcome organizational capacity barriers? (These could include strategy development, financial forecasting capabilities, improved manufacturing approaches or product design, barriers to accessing funding, etc.).**

SWFF offers packages of support ranging from immediate advice from TAF itself, to training and consultancy support through approved TA support providers which is intended to be tailored to the innovation. The voucher system has been developed to widen the range of choice by providing innovators with a schedule of TA support providers they can interview and decide to use.

In this question on effectiveness of these interventions, responses towards SWFF support are relatively diffuse. Among the interviewees, most sought acceleration support to (by rank) strengthen organization, strategy, and business plans; followed specific mention of strategic planning; business plans; and product design. One or two innovators noted that their needs e.g. specific technology design advice was not met by the TA support providers and they would have preferred financial support being under their direction. The latter point was made most emphatically by northern innovators but also by those in the south. The majority, however, were satisfied with the range of support and specifically with the results from TA support providers from the South.

There was a wide range of opinion about the extent to which the innovators themselves were able to drive the process leading up to engaging TA support providers. Most interviewees felt that the acceleration support was driven by SWFF, the next group noted that this was jointly decided, and a minority that the innovators themselves drove the process.

The SWFF contribution to the support of innovators is widely reported as leading to the resolution of obstacles to innovators development. Some reported immediate removal of obstacles and forward-looking perspectives, others reported advice taking longer than anticipated with repeated iterations, and some reported that the obstacles were intrinsic to their working environment and could not be readily resolved.

Some innovators specifically mentioned how they had been involved in deciding on a TA support provider and it had led rapidly on to a solution.



We were looking at black water recycling as a business model; they had expertise and looked at it as a business proposition. We had to provide them data, surveys and they clarified our profit and loss and supported the establishment of our business model.

Others mention a difficult stage of interaction with TA support providers, particularly due to their lack of familiarity with local conditions and because of very different time zones.

SWFF is very efficient and perhaps too efficient, the initial challenge I had is they put out a tender. It seems from the nature of the tender that the company will almost always be in America with a time gap of some 24 hours. Although they had worked in Africa, you could tell there are a lot of gaps in fact, we went back and forth over my financial model but eventually we understood each other. Maybe it is difficult for them to get consultants from here although they could be very efficient.

In this case eventually it worked well but not in a straight line but rather through extensive reiteration is needed, a feature with many consultants in an innovatory environment.

The truth is that SWFF works very well but one thing they couldn't do for us is to get us a tailor made consultant. We needed a resolution of an IT problem; they provided us with software ready to use and so we couldn't use it. But they showed them modifications and eventually redid it and it was great.

Some innovators found that strategies advised by SWFF did not work in their local context.

We did try to use volunteers and interns, but it was not successful; there were high expectations; our country context is different to that of USA.

One innovator found there were obstacles to their development which were intrinsic to their development but not readily solved even with the focused resources of SWFF. The same innovator did, however, value the specific advice from a TA support provider which led to growing professionalism in their work:

We are currently having help with marketing and through the SWFF team with branding, they understand my business so well and I have seen them help other innovators to do branding so I decided to go for it.

The innovators and SWFF are understood to be working in an environment in which the innovations themselves have to transform by rising to new challenges in defined targets or fail.

The key question is not only new ideas, it is about taking ideas out into the market specifically the transfer of technologies. SWFF wants to see things start and end in the communities, with a market. This is your one chance to get it right, you will be culled.

**FINDING:** SWFF support is focused on helping innovations to scale up and meet targets; the vending system has been considerably improved to meet innovators needs but some innovators would like to explore further the engagement of TA support providers to be more flexible and useful.

**RECOMMENDATION:** More TA support providers from the south should be listed and other aspects of choice explored such as contributions from innovators themselves to match funds to engage TA support providers.

Question 7b. Did SWFF TAF enable certain (new) (combinations of) expertise to be deployed that would otherwise likely not have been deployed/used (by the individual partners)?

SWFF aims to bring together the necessary expertise through a variety of means; through TAF itself, the TA support providers, SWFF network of innovators and by new partnerships. There is a wide range in responses to the question with most mentioning SWFF activities resulting in combination of such expertise through new partnerships although a sizable minority does not. A number also felt uncertain whether SWFF itself rather than their own initiative was instrumental to these new partnerships.

The direct support of SWFF is highly appreciated but many innovators show as great appreciation for SWFF enabling contact between the innovators both within and without the SWFF network. This has been the source for many strategic partnerships.

In relation to direct support, a number of innovators reported that TA support providers had helped innovations to break out of the pilot stage:

We were just starting up as a pilot until SWFF extended support. Without SWFF, we wouldn't have been a viable innovation...the idea never would have arrived.

Others felt that the open SWFF forums, even more than direct intervention, were a way of making new partnerships.

SWFF Conferences-led to us being able to call on different people in that network and we do that frequently. We've partnered with SWFF awardees to improve our product and with international companies and agencies; all through SWFF.

For this innovator SWFF conferences opened opportunities to increasing the agricultural productivity from their product as well as getting advice about their institutional status as a social enterprise with an international organization.

Another innovation wanting to attract investment to open interventions in two African countries reported SWFF opening contacts which led to funding this initiative as well as for attracting additional Netherlands social impact funding for the provision of microfinance loans to customers. SWFF "helped a lot" in giving credibility to this innovation, in identifying partners and in using its international links to secure investment.

While innovators acknowledged SWFF enabled new combinations of expertise, they were also keen to show their own initiative particularly in relation to partnership with government, possibly a sensitive area for direct SWFF intervention.

One innovation stated, “We have made our own links such as with the South African Weather Services because we can’t give forecasts without their knowledge.”

On balance SWFF wants to provide support in expanding combinations of expertise but also has the expectation that innovators need to take the initiative such as in SWFF conferences and beyond to explore expanding these relationships.

**FINDING:** Finding the appropriate combination of expertise in support of an innovation is intrinsically difficult; while most feel SWFF has helped decisively some innovators want to further explore ways of prioritizing their needs.

**RECOMMENDATION:** Further experimentation with the vendor system in matching funds or another funding mechanism would be rewarded.

#### **Question 7c. Were there additional barriers that were not addressed by the SWFF TAF?**

The term “additional barriers” is understood as those barriers outside of the SWFF framework which the innovators encounter and work to surmount. While most interviewees felt there were such unresolved barriers, a large number were uncertain, and a sizeable group felt additional barriers were not addressed.

Not all innovators felt that the additional barriers could be successfully addressed by SWFF as these sometimes were part of a national or even international social environment far greater than the Program.

It is a challenging to find the right person with the right commitment and inclination to work in the field. Getting someone to work at the office is very easy. This kind of work (as a rural development professional), is not known to a lot of people in India. People in India are looking for a blue-collar job and this work does not fit in that criteria.

Other interviewees gave somewhat contradictory responses, either reporting barriers but not receiving support but also appreciating advice on their business model.

No such support was received. There were areas in which we were struggling. Though there are several problems that we are facing, we were asked to give the data. We did appreciate the support however, on our business model.

Some barriers were identified by an innovator as very challenging but were not directly identified as being within the SWFF field of work. An unusual information technology challenge was encountered very challenging to overcome; it took some time to identify just how this would be solved. No response from SWFF was reported but through iterative work with a TA support provider to reach the solution.

A few innovators felt they had barriers which were specifically technical and possibly unique. This point is returned to below.

**FINDING:** Additional barriers are reported by innovations but not all expected a resolution from SWFF itself. Some barriers need longer time and iterative work to overcome.

**RECOMMENDATION:** Possibly SWFF should further engage with innovators to list the barriers experienced and undertake online exchanges on the most common.

**Question 7d. Were there positive or negative unintended consequences of the support?**

Every intervention has unintended consequences of one kind or the other. Predominantly interviewees reported positive consequences, others positive and negative and a single respondent reported only negative unintended consequences.

Among those that had positive unintended consequences is an innovator who reported that their award led to an unexpected access to “different grants with other funders like with FAO”. Improving internal systems could also lead on to having the capacity to write better proposals.

Upgrading software and reporting requirements helped us to understand the business better including targeting of funding...ensuring that requests for funds were mapped clearly against activities on the ground, etc.

The institutional and personal contacts between TAF and innovators have had some positive consequences which were not entirely planned.

Little by little the innovator listened more and more while previously he just was not open to the support. With space and time...he realized the business was going to collapse and he slowly changed. This led to starting a company and taking charge as CEO.

Some of these positive consequences have gone beyond the innovation itself into a much wider social field with unintended results, in this case greater consciousness on the extent of climate change and the conservation of water.

We ensured that the farmers are sensitized on the utilization of water, which is a scarce resource. We could also ensure that farmers realize the impact of climate change on availability of water. They have learnt the hard way and are now using micro irrigation systems.

Amongst those who had experienced both positive and negative unintended consequences, some were aware of changes within themselves.

We now think in a business way which may not be a negative per se but the sales training we had in the end took us away from the focus on our intended beneficiaries.

Others found, for themselves, the loss of funding was a devastating negative consequence to themselves.

We were sure that we would get the support of SWFF for the next year. But we came to know that the support has not been extended. This was the unexpected consequence of the project.

**FINDING:** There are mostly positive unintended consequences directly for the innovations or in a wider social context. There may be some concern about negative consequences of shrinking rather than expanding markets.

**RECOMMENDATIONS:** None.

**Question 7e. To what extent did the SWFF TA Facility provide SWFF innovators with technical assistance that innovators deemed useful?**

Most interviewees were very satisfied or satisfied with TAF support while a small group was either unsure, “somewhat” or “not satisfied”. The overwhelming impression in interviews is appreciation of the advice communicated either on regular calls or online and, particularly, of field visits. The views of the minorities were not uniform, expressing disappointment in some dimension with a suggested partner or a lack of specific technological advice or with delayed response.

Most interviewees felt that the assistance they had received from TAF led to immediate success, or success over the longer term; these constituted the overwhelming majority the remainder were unsure or felt assistance was not successful.

As mentioned, the majority were highly satisfied with TAF support and many felt this was exemplary and led to immediate success.

We are very satisfied with the support; we have worked with other agencies and regard SWFF as in the first rank. All of the market research and business model support translated directly to an improvement in our model or in our service. They helped us to be an actual viable business entity and not just a not-for-profit handing out to beneficiaries.

The responsiveness of TAF personnel and introduction to the various tools available is appreciated.

We were very satisfied with the support received from SWFF/TAF. The team is very responsive and helpful. Some of the tools around marketing, data collection, and analyzing and using the data for M&E and other purposes has been very helpful.

Special mention is made of gender training and support which was very helpful and scored highly by innovators and gave them confidence in dealing with a challenging issue. The training during the South Africa conference was effective and helped to elevate that aspect well.

Some of this majority did have reservations in relation which related to the following:

- The time taken for TAF or TA support providers to understand the particular technology and context of an innovation.
- The innovation did not or could not take up SWFF advice e.g. “we are working hard to expand our program to reach more farmers though perhaps not necessarily through a private sector model”.
- At times the advice changed unexpectedly, “Communications were not always easy and there were a few areas where SWFF changed their focus without clearly explaining why”.
- Lack of access to field reports. Some innovators had not received field reports following visits by TAF.

- Lack of specific forms of technical advice, “We have not received any support on the technical aspects. We are making them understand that this is a process-oriented product and not over the counter product. It is customized to the needs of people.”
- Difficulties in concluding a satisfactory product from TA support providers, “We tried to work with a vendor and it was not a great experience, the vendor felt the work was delivered but it was not. The vending scheme has now changed to mitigate these problems”.

There were two issues which are useful to discuss further, firstly the idea mentioned by some innovators of greater freedom to adopt vendors of their choice and access to specific scientific or technical support. A well-established innovator who was very satisfied with TAF support suggested that the innovation wanted to select a TA support provider who he felt was better than those on the SWFF schedule. Others who are similarly satisfied have, at times, suggested that their innovations have not able to get the specific technical information they needed through TAF.

These two issues were discussed with TAF and SWFF personnel. SWFF and TAF specifically work within United States Government rules which “sometimes prevent us from giving them the things they ask for, some are illegal and we are constrained by US law.” USG funding, for instance, cannot be used to support media that directly influences a government.

Procurement rules also restrict innovators or TAF from contracting experts the innovators may want to work with. The innovators have to work through the voucher system, get their selection vetted to demonstrate they are better and cheaper than competition.

One of the key attributes for innovations to make the best from assistance is “coachability”, the ability to drop defensive reactions and learn fast. A mom and pop innovation may succeed but tends to have fewer tools and need more partners. Seasoned advice may be available but it may take time and responsiveness for advice to be adopted. This makes the personal qualities and communication abilities of TAF sometimes critical to success.

An example was provided of an innovator who was savvy and a “genius for selecting partners”. “She recognizes the skills or tools she doesn’t have rather than trying to do everything herself. She finds it with other groups. Other innovators have a hard time learning that lesson.” All Founding Partners agree that Technical Assistance is both an integral feature of SWFF and a critical reason for the progress of innovators.

**FINDING:** Technical Assistance is a key feature of the SWFF design and is highly appreciated and many innovators consider it more important than the actual funding. Possibly because of its importance there is some concern to expand its parameters where possible.

**RECOMMENDATION:** Technical Assistance and training should be made available in the new initiative.

**Question 8. How effectively have investment risks been managed by the program? (number of failed projects, timeliness of reaction on problems observed etc.) (H3) Has the milestones-based**

### **tiered grant structure led SWFF to continue funding only the most promising innovations over time? (H3)**

Since SWFF has elevated goals but finite resources, the rewards for risks undertaken is a measure of its management. In its design SWFF has risk management policy and procedures to serve two main purposes: to identify, reduce or prevent undesirable outcomes and to review past incidents and implement changes to prevent or reduce future unfavorable outcomes. The procedures used in application by innovators, the applicant survey and the processes involving the adjudication by the IIAC all are evidence of due diligence before SWFF funding is advanced. The annual and semi-annual reviews focus attention on measures to adjust to positive or negative developments. SWFF visits to the innovators are a further channel for understanding progress and mitigating risk.

Evidence on these issues is led largely from key informant interviews the overwhelming of whom regard portfolio risks as either “excellently managed” or “well managed”. A few interviewees assessed risks as adequately managed or “not well managed”. Most again (among a smaller group that responded) feel that the portfolio is balanced with one or two individuals assessed SWFF strategy as “somewhat” or “too conservative” and one felt was “overly risk taking”.

SWFF has a considerably higher risk profile than conventional funding programs; although it also has pronounced features of risk mitigation through rigorous selection of innovations and support provided to projects which are, by self-definition, not working conventionally. The risk at the innovation level is not only of failure to have significant impact but also at the Program level in possibly having no or lower returns for funds allocated.

If the definition of risk rewarded is the return of investors' capital<sup>4</sup>, then the Program has a level of risk well beyond that of a commercial venture. The social objectives of SWFF, the targeting of the poor and very poor, the prioritization of greater agricultural productivity simultaneously with greater water efficiency, however, considerably narrow the field and indicate that the Program provides the necessary feedstock of financial support which will be used to progress towards these objectives. While there is no expectation of direct return of capital, the investment of resources is targeted to realize social returns. The risk for SWFF resides, in innovations taking considerable time and resources to start realizing these social returns.

Program failure could be found if a debilitating environment of bad news and crisis management resulted from a high level of innovation failure. Various interviewees assess the Program risk in various ways, in terms of the complexity of the program, the moderation of risk through careful selection of innovations, and by other means.

Risk is always based on how complex the model or business model is. When the current (institutional) order is displaced, there are going to be losers and then the potential for a dangerous blow back.

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<sup>4</sup> This is the standard definition of success according to Shikhar Ghosh, a senior lecturer at Harvard Business School and three-quarters of venture-backed firms in the U.S. don't achieve this.  
<https://www.wsj.com/articles/SB10000872396390443720204578004980476429190>

Market failures such as could be experienced by shrinking markets rather than a widening of markets could lead to innovation failure and institutional conflicts.

The failure of a proportion of projects, however, does not necessarily reflect on the Program as no failure might indicate the risk taking to achieve high social returns is not taking place. A portfolio of different types of innovation and risks is needed for disproportional results to outweigh inevitable failures. It does, however, remain for SWFF to demonstrate conclusively the achievement of high social returns. An IIAC participant argues SWFF is succeeding in creating such a portfolio.

It seems that SWFF is quite balanced given the spectrum of projects it covers. Not many projects are found at a higher stage as these tend already to be big commercial activities. SWFF comes in to fund the “valley of death” gap, where innovators struggle to scale up in terms of investment and customer base-revenue.

SWFF actively works to reduce risks by diligent review of innovations, careful selection and close oversight.

Compared to Sida’s traditional approach, SWFF is much more controlling with a stepwise approach that helps to mitigate risk across the board. There has been a lot of discussion about the level of risk but in the end, I think the balance has been right, particularly as SWFF is paid for by taxpayers. A failure could easily be picked up by newspapers or the on the internet, so protecting the reputation has been the right approach.

Some innovators feel that necessary micromanagement by TAF has radically reduced risk taking. Responsiveness: regular review, modern communications, availability of key personnel, prepared to be in the field, capacity to provide assistance, reallocation of targets if the best strategy or of funds. Some members of the IIAC feel that more could be done although this is not universally held.

There is more pointing out the problem rather than going in and actually getting your hands dirty, making it a connection.

The IIAC have a critically important role in managing risk while the Founding Partners may have contrasting views. There have been pleasant surprises and TAF has been good at turning some of the more risky innovators around. The IIAC experts provide an invaluable and much appreciated component of SWFF through their multi-disciplinary assessment of risks and rewards across innovations. It is generally acknowledged that a key challenge in assessing the innovators is that the IIAC will likely not really know the markets in which the innovators are operating.

The program helps to unlock the reward through the seed money and reduce the risk through the requirements and reporting responsibilities placed on the innovators. An IIAC member acknowledges that the latter criteria may be choking and that their expert opinion may, in some instances, be overridden by the Founding Partners. Some analysis of the success rate of these Founding Partner “overrides” or the further work required of SWFF/TAF to ensure the success of these innovators not recommended by the IIAC but still brought into the program may be instructive.



Founding Partners are more open to risk than the IIAC who apply their discipline. It is hard to tell how correct the IIAC predictions or initial judgments were – it would be an interesting exercise to review the results. There are very few conservative innovators in the program.

There is a sense that there is a lot of directing and I wonder if there is a loss of innovation...we need a balance of creativity in responding to opportunity and as well as following a structure.

As explained, SWFF prioritizes the funding of selected innovators as Tier 2 awardees and their additional funding does not appear to have crowded out the Tier 1 awardees but further research is needed to make a definitive finding.

**FINDING:** The Program is effectively run, ensures close attention to detail, and has a hands-on approach with the awardees. The flow of reliable and authoritative information enables innovators and SWFF to “pivot” as new information becomes available and to take difficult decisions where necessary.

**RECOMMENDATION:** SWFF should foster more exchange of information on the barriers that innovators are facing and efforts to overcome them. Initiating wider links with related embassy and other programs would further enhance SWFF’s effectiveness.

**Question 9. How well did founding partners interact within SWFF and what lessons should be taken from their interactions?**

By all accounts, SWFF has been a labor-intensive effort for all involved. Founding partners have had to stretch to meet the requirements (not in some ways unlike the innovators themselves) particularly in terms of time to dedicate to the program. SWFF has been run with a higher degree of intensity than most other challenge funds (as also noted by the TripleLine review for Sida) with more regular meetings and high expectations of partners to review lengthy applications and provide input to decision-making particularly as to whether innovators should be advanced to subsequent stages in the program.

SWFF has a productive division of labor. The appearance is that with shrinking in-house capacity, other founding partners have had to run to keep up with USAID, who installed a dedicated staff member to oversee the day-to-day functioning of the fund. With this, a high level of trust has grown out of an appreciation for the dedication and commitment as well as the attention to detail shown by the USAID manager. Regular meetings and consistent reporting have served to keep partners up to date (even as partner representatives changed) both on the progress of the innovators but also of SWFF as a whole. As a result, there is a high level of familiarity with the inner workings of SWFF by founding partner representatives, including the processes used to select, support, and graduate the innovators, as well as many of the innovations and their contexts.

Founding partners make important policy as well as funding contributions. There has also been an appreciation for the diverse but generally complementary agendas of the different partners. With time, partners have come to anticipate the particular themes and kinds of questions that each has brought to the table about the program overall and with regard to innovator selection and support. A clear example is the Sida emphasis on gender for which Sida put forward guidance, offered some analysis and leveled clear expectations as to how it expected SWFF to incorporate gender into the program. Gender did not

become a measured indicator but there was a clear expectation that innovators would recognize and seek to optimize their impact in this area. This became more embedded in the selection criteria in later rounds. Thus there was a sense from interviewees that founding partners could influence the design and shape of the program, although less on the day-to-day which was run by USAID rules.

IIAC members also noted that founding partners had veto power that in some instances reinstated the application of an innovator that they had rejected. Although recognizing the “political” nature of these kinds of programs, some IIAC members questioned why they as a diverse group could take considerable time to review and reject an application based on their professional judgment that was then still brought into the program.

USAID is highly visible while most founding partners have low visibility in SWFF. The general sense from innovators is that the founding partners were not very visible throughout the process. Obviously working with USAID on a weekly and monthly basis in what was often described as an intense but supportive relationship left the other partners a bit in the background. That said, numerous interviewees noted that there were missed opportunities to tap into complementary support that could perhaps have been provided by embassies and related programs. Although nothing was to stop innovators from making these connections, it seems that SWFF itself was not forging these links. This ties in to other aspects of the review, which notes that, due largely to resource constraints, efforts to address bottlenecks in the wider enabling environment were not really embedded in SWFF.

SWFF has an uncertain influence on other donor funding programs. It is difficult to note with any certainty how influential SWFF has been on other donor programming. Informal conversations with colleagues from related offices seemed aware of but not very familiar with SWFF. It was suggested that efforts by USAID to reach out to DGIS and Sida in a wider vein would have helped to spread the word more effectively and keep SWFF “on the front burner”. While interviewees suggested that SWFF had a positive influence on other programming, little actual evidence was put forward for the team to review of how other programs had been shaped in SWFF’s image or adapted elements of SWFF’s approach. That said, interviewees were doubtful that with limited human resources that SWFF could be replicated in any meaningful way in-house as implemented by USAID. Although there was an appreciation for the results and the contribution of the lean TAF and its efforts to ensure value for money, funders were less familiar with the actual running costs for SWFF and the staffing and other costs being absorbed by USAID beyond the \$35m budget. So there remains a question of how much it actually costs to run a program of this nature and design.

The founding partners include key northern funding agencies and, despite the participation of South Africa, there is a deficit of participation from southern governments and institutions. Interviewees also mentioned that the frequent reference back to the northern founding partners and their way of working left the program a bit skewed in terms of not necessarily being grounded in how businesses take off in different contexts. Ideally South Africa as a late-comer fourth partner would have played a more prominent role to redress the balance somewhat. It was suggested that future such arrangements should ensure more southern representation at an earlier stage. This has been expressed by a founding partner:

It was obvious that SWFF needed a more southern perspective and we helped push for more southern partners to join.

There are not many southern countries which had the necessary depth of knowledge and of scientific community to make a significant contribution to the IIAC and in other dimensions.

The challenge is to ensure that the quality of representation is appropriate in the quality of representation – South Africa has academic strength, knowledge of how things work, network and connections.

The Founding Partners combine complementary interests with individual priorities and recognize these synergies make the SWFF approach stronger. Ultimately, although the relationships among the founding partners has been noted as very healthy and productive, (a “healthy competition” even), some interviews reflect that an element of connectedness appears to be missing. Some of this is down to time constraints of busy staff, but in interviews there sometimes appears to be a facilitation gap that is mindful or aware of more than the nuts and bolts of the program.

Such a gap could be closed if, for example, the criteria of investors to guide the program could be used from the first instance, the links between innovators and other programs in country could be made, the bottlenecks in the enabling environment could be broadly reviewed and the connection to other challenge funds to learn from their successes and failures could be made methodically and systematically.

**FINDING:** The founding partners bring complementary agendas to the SWFF partnership, which meets the various needs and capacities of each agency. USAID’s effective management of the GC is highly regarded.

**RECOMMENDATION:** Greater emphasis should be given to broadening the southern membership base of the Founding Partners in a new initiative and linking these partners more effectively to the Program. Such partners could help locate and support suitable innovators particularly from the South.

### Section 3: Efficiency

**Question 10. To what extent were the SWFF results to date in balance with the level of effort and resources (funds, human resources including by the FPs, TAF, interns, consultants)?**

As outlined below in Table 7 Comparative Efficiency, 66% of KII respondents stated that SWFF is above “par” (“highly efficient”); 1 respondent felt SWFF operates below; and 15% are uncertain due to a lack of data on LOE and resources spent. The solitary respondent on “not efficient” felt that the overarching system was too complex to be efficient.

**Table 7. TAF Comparative Efficiency**

<b>TAF Efficiency (n=27)</b>	<b>N</b>	<b>%</b>
Above	1	4%
Highly efficient	18	66%
Not efficient	1	4%
Sufficiently efficient for purpose	3	11%
Uncertain	4	15%

However, Table 8 on SWFF results vs resources demonstrates clearly that the majority of innovators (67%; n=21) were unclear on the SWFF budget; two innovators had limited sight; and only three (16%) had clarity around the budget. That being said, subjectively 67% of respondents stated that SWFF has high value for money; 33% are uncertain; no one stated that SWFF does not provide value for money.

**Table 8. Results vs. Resources**

<b>Knowledge of SWFF Budget, N=19</b>		
Clarity around budget	3	16%
Limited sight of budget	2	10%
Uncertain around budget	14	74%
<b>Value for Money</b>		<b>N=21</b>
High value for money	14	67%
Uncertain re value for money	7	33%

The responses captured in this table also support the notion that innovators and other key respondents from founding partners and the IIAC feel that financial reporting, M&E requirements, and the application process are at value or exceed the value in comparison to the SWFF support received.

74% of respondents across all respondent types were unclear on the specific overall costs associated with SWFF, but did note that while they felt SWFF's costs were higher than other GC funds due to a variety of factors (from parent contract type, labor rates, G&A and OH percentages, etc), SWFF has high value for money. According to USAID interviews, SWFF also exceeds efficiency in cost per beneficiary, which helps to balance out slightly higher administrative costs. The issue is further explored in the next question.

The majority of innovators and other key stakeholders (IIAC, FPs) did not provide concrete answers to this question in a way that it can be aggregated across all respondents. Respondents from FPs, innovators, and IIACs have a sense of their own effort and resources involved. However, apart from USAID, they do not have a clear idea of the resources (LOE, funds) employed by SWFF. This makes it difficult to assess the balance. Despite this, there is unanimous agreement that the SWFF results to date (either individually or as a whole-of-program) are in balance with the level of effort and resources spent. Stated alternatively, innovators feel that efforts in engaging in SWFF are subjectively worth the effort compared to the outcomes achieved because of SWFF technical assistance, exposure, and the push to scale (as discussed in 10c. below as well).

One of the founding partners, while acknowledging that they do not know the real costs of running SWFF compared to more traditional ways of working, hypothesizes that SWFF has "very good value for money," especially in regards to the leverage figures being reported. Similarly, an innovator noted s/he would be surprised to see "a randomized control trial that didn't show that SWFF does 10 times better than other development programs."

Innovators and FPs across the board acknowledge the high level of effort needed by innovators to stay in and excel at the SWFF program over the years of funding. Reporting is demanding, check-ins take time and resources, and field visits require planning and manpower. However, those same innovators

attribute their success on some level to the support SWFF has provided; the resources, technical assistance, and network available; and the targets and milestones, which have all contributed to their growth as an organization, regardless of how sustainable, profitable, or successful they are at that moment in time.

**Question 10a. To what extent was the TA Facility efficiently set up, organized and managed?**

Based on KIIs with innovators, FPs, IIAC, and the TAF, the majority of innovators overwhelmingly appreciate the dedicated support of the TA Facility and feel it is efficiently set up, organized, and managed, providing the right kind of support, at the right time, from the right people. This is not to say that it has addressed all innovator needs or been able to respond to all requests for support – but the TAF facility is cited by 66% innovators as being “highly efficient” in its contributions towards their success and outcomes. The TAF and its staff members are responsive, and care deeply about the outcomes of SWFF and its innovations; this is clear in the level of effort, caliber of work, and positive responses of everyone involved in SWFF: from USAID and FPs to innovators.

**Question 10b. To what extent are the administrative costs for managing SWFF above, below, or on par with the cost of similar challenge funds? (Special consideration should be made for funds that provide technical assistance to their innovators.)**

The primary data available here is limited to KIIs with FPs and IIAC members, paired with secondary research on existing and similar Grand Challenges (GCs), of which there aren’t many for which data on administrative costs is readily and publicly available. The number of GCs focused on agriculture is even smaller. The team is currently working to review and integrate findings from the Sida Grand Challenges evaluation and once those are final and the team has had time to coordinate with the Triple Line team, the comparative data collected by that team will be more deeply analyzed and integrated into this evaluation. However, based on the available evidence during Phase 1, the team finds that SWFF is below the administrative costs for similar Challenge Funds.

Comparatively to other USAID Challenge Funds (to be explored more extensively during Phase 2), SWFF operates below administrative costs (factors include using support primarily from regional expertise instead of more expensive European or American companies, thereby also supporting regional capacity; a “lean and mean” TAF according to one innovator’s response; and a vigilant COR who is incredibly intentional about the money spent under the SWFF program.

Table 9 is taken from the Sida Challenge Fund evaluation and provides data across 10 Sida managed CFs, including SWFF. During Phase 2, the SWFF external evaluation team will expand this table to include other USAID CFs and integrate data on cost per beneficiary (the start of which is discussed above).

**Table 9. Fund<sup>5</sup> Management Costs for Sida's Global Challenge Funds**

Challenge Fund	Currency unit	Total value of donor commitments	Total value of grants	Total Cost of Admin / FM	Admin. / FM as % of total budget	Admin. / FM as % of grant value	Source
SWFF	m USD	34.91	19.51	15.39	<b>44.1%</b>	<b>78.9%</b>	SWFF Budget Narrative Y4 Update
PAEGC	m USD	49.09	24.47	18.78	<b>38.3%</b>	<b>76.7%</b>	PAEGC Annual Report Financial Year 2017
Demo Environment	'000s SEK	58,800	45,651	13,149	<b>22.4%</b>	<b>28.8%</b>	Demo Environment III - Annual Report (2015-16)
AECF REACT SSA	'000s SEK	400,000	-	-	<b>30.0%</b>	-	Sida Appraisal for REACT SSA + AECF interview
IAP1	'000s SEK	50,990	25,500	25,490	<b>50.0%</b>	<b>100.0%</b>	2011-004499 Annex 4, Fees and cost schedule
IAP2	m EUR	7.40	4.12	3.28	<b>44.3%</b>	<b>79.6%</b>	IAP2 -1st Progress Report
GIF	m USD	178.00	-	-	<b>24.1%</b>	-	Progress Report 2016
MAVC	m GBP	24.86	11.67	7.17	<b>28.8%</b>	<b>61.4%</b>	MAVC-EMU Final Evaluation Report
Amplify Change	m Euro	94.42	81.83	12.59	<b>13.3%</b>	<b>15.4%</b>	AC Annual Report 2016 - Section A : Technical
Sustainability & Resilience	'000s SEK	57,000	54,000	2,811	<b>4.9%</b>	<b>5.2%</b>	Activity Report 2017

Source: Sida Grand Challenges Evaluation Annex K

However, though the evaluation team does find SWFF support to be of high quality, this comparison does not take into account quality of service, individual impact on each beneficiary, or other quality-related factors. The team will explore these topics more during Phase 2. Without comparison to other GCs, the SWFF administrative side is managed very well with an eye towards cost effectiveness and value for money at every juncture.

**Question 10c. To what extent is the level of effort and resources spent by applicants/innovators in balance with the added value SWFF brings?**

According to the innovators, specifically those that have other donor experience (or even other USAID experience), SWFF adds value compared to the resources spent, specifically in terms of M&E and other reporting requirements. 66% of respondents stated that resources spent on financial reporting were at or exceeded the value provided by SWFF in return; 69% of KII respondents replied the same in regards to M&E reporting requirements. One and two respondents respectively felt the time spent was below value; 24% and 17% respectively did not have enough comparative experience with other donors or programs with which to make a determination.

<sup>5</sup> *Ibid*

**Table 10. Financial Reporting**

<b>Financial Reporting</b>	<b>N =21</b>	
Financial reporting~ exceeds value	7	33%
Financial reporting~ At value	7	33%
Financial reporting~ below value	2	10%
Financial reporting~ uncertain (limited or no other experience)	5	24%

**Table 11. M&E Requirements**

<b>M&amp;E Requirements</b>	<b>N= 23</b>	
M&E requirements~ exceeds value	6	26%
M&E requirements~ At value	10	43%
M&E requirements~ below value	1	4%
M&E requirements~ uncertain (limited or no other experience)	4	17%

A handful of innovators - some stronger organizations and those that are from the “North” - did not see the value as strongly as those in the South and those still solidifying their innovation and approach. The majority of innovators in one breath complain about the milestones and indicators, at times cursing their existence, yet in the following breath attribute much of the success in scaling and expansion to these same milestones, paired with the support of the TAF to do so intentionally and effectively. As one innovator notes (but many agree), SWFF has a “much higher level of reporting and admin compared to other programs but a very high rate of return on the investment based on the number of farmers reached and seed produced.”

The area in which all innovators agree there could be improvements in efficiency and a reduction in time spent is in the application process. According to Table 12, 67% of respondents felt that the time spent on the application was worth the effort (43%) or exceeded the value gained (24%), but anecdotally innovators and even FPs understood the burden the application can place on an innovator. According to USAID KIIs, applicants during the first round spent approximately 40 hours on the application. Support to complete is provided past a certain stage, but much of the early effort is spent on “deciphering AID-speak” and trying to understand exactly what is expected of them in the application. If the desire is to uncover new and potentially outcome changing southern-based innovations, then the questions in the application process need to reflect the inability of some of these lesser-known yet potentially successful innovators to understand development speak (also important if the goal is to balance social engagement with private sector profitability).

**Table 12. Application Process**

<b>Application Process</b>	<b>N =21</b>	
Making application~ exceeds value	5	24%
Making application~ At value	9	43%
Making application~ below value	1	5%
Making application~ uncertain (limited or no other experience)	6	28%

**FINDING:** Program efficiency: Innovators strongly appreciate the dedicated support of the TA Facility and feel it is efficiently set up, organized, and managed, provides the right kind of support at the right time, from the right people. 74% of innovators cite the TAF as being decisive in its contributions towards their success and outcomes.

Compared to other programs, SWFF is regarded as adding “tremendous” value, specifically in terms of M&E and other reporting capabilities.

**RECOMMENDATION:** Reinforce innovator sustainability/viability, and programmatic (or innovator) learning and adaptive management as well as continuing the reporting on the achievement of primary outcomes.

Efficiency would best be served by focusing on strengthening the enterprise in Year 1 (microfinance), moving to scale in Year 2 (additional investment), and consolidating the business plan in Year 3 (viability).

Section 4 Impact

The following section provides an overview of SWFF’s impact at both the innovator and program level. These findings and conclusions are largely based on the site visits to and KIIs with innovators and local partners in six countries; key informant interviews with innovators, IIAC, and Founding Partners at Stockholm World Water Week (WWW); focus group discussions with beneficiaries; and secondary M&E data.

Question 3. Were solutions sourced through SWFF adopted and utilized at scale?

As shown in Table 13<sup>6</sup> below, of those interviewed at WWW or in country during field visits, most (86%) of the SWFF innovators have at least a plan to scale in place, at an early or matured phase, and are meeting or exceeding some targets (except for one innovation). These categories are comparable but differ slightly to those of the TAF Innovation Stages in Portfolio Review, and add value from the perspective of the innovator. 77% (16) of innovator interviewees are meeting or exceeding at least some of their targets in scaling up. For some, the evidence to scale is largely anecdotal (n= 5, 24%), while for others there is a replication and expansion plan in place with clear evidence to scale (n= 3, 14%). Innovations entered into the SWFF program at various levels of maturity: for some SWFF was the way to take an idea or a pilot to fruition and have used SWFF for everything from technical assistance to organizational capacity building, while for others SWFF presented stop-gap funding for an innovation both tested and already effective, inside of an organization and well-established in some spheres.

Table 13. Stage of Development: Plans for Scaling Up

	Total, n=21	Percentage
Innovations: plans for scaling up		

<sup>6</sup> This data came from confirmed assessments of innovations undertaken during field visits and is validated/verified by existing TAF data on scaling maturation.



No plan to scale up in place	0	0%
Initial plan in place but evidence largely anecdotal	5	24%
Early plan in place with quantitative evidence collected	9	43%
Matured plan in place for scale	4	19%
Replication and expansion in place with clear evidence	3	14%

**Source: Data from surveys & KII interviews.**

**Table 14. Stage of Development: Status, Meeting Targets**

Innovations, status on targets	Total, n=21	Percentage
Not meeting targets	1	5%
Early stage, i.e. pre-scaling up stage	4	19%
Meeting some targets in scaling up	8	38%
Meeting all targets in scaling up	6	29%
Exceeding scaling targets	2	10%

**Source: Targets Met, data from surveys & KII interviews)**

As shown in Table 14 above, 39% of innovations are meeting (29%) or exceeding their targets (10%) in scaling, while 57% are at an early stage are meeting *some* targets. Only 5% (n=1) of innovations are not meeting any targets in scale.

SWFF has helped to established new and strengthen existing partnerships for 89% of innovations, which has spurred the way for expansion and growth in the districts in which the innovation currently works as well as into new regions and even countries.

**Table 15. Status of Innovator Partnerships**

	N=18
Innovator was able to establish new partnerships as a result of SWFF support	14 (78%)
Innovator was able to strengthen existing partnerships as a result of SWFF support	2 (11%)
SWFF did not impact on innovator partnerships	2 (11%)

**Source: KIIs: site visits and WWW**

Scaling up is closely linked to innovations developing partnerships to add capacity to make qualitative change. In working to meet demanding targets and milestones, the innovators are finding it critically important to establish new partnerships or to strengthen existing partnerships.

**Question 4. To what extent has SWFF contributed to the outcomes and results outlined by the indicators in the SWFF PMEP during project implementation and post project implementation?**

Attribution in the clearest sense of the word is not possible in a performance evaluation of this nature. Without clear baselines on a well-defined set of indicators that carefully track SWFF's support and hold constant support (financial and technical) from all other donors, as well as the absence of a robust counterfactual, the evaluation team focuses its attention of SWFF's contribution – both from the perception of the evaluation team and the innovators – to the results and outcomes achieved by each innovation.

To mitigate issues with attribution, the team surveyed beneficiaries and interviewed innovators (as well as other key stakeholders) to help ascertain the level of SWFF contribution to outcomes and results along a set of clearly-defined impact indicators: from improvements in income, level of perceived benefit, level of satisfaction, improvements in access to water and water efficiency, and contribution towards improvements in agricultural yields. Not only does the data the farmer is using to determine the benefit vary in rigor, so does the question of subjectivity vs. objectivity in perceived benefit.

Table 16 on SWFF's Innovations' Programmatic Emphasis breaks down the emphasis of innovations on the key SWFF objectives of productivity increases, pro-poor focus, and water efficiency (innovations can have more than one focus across the three so the ns will not add to 25). As shown, nearly all innovations that formed part of the KIIs had a clear agricultural productivity increase (80%) and clear water efficiency gains (76%); 64% have a clear pro-poor focus.

**Table 16. Innovation Programmatic Emphasis**

<b>SWFF Programmatic Emphasis, N=25</b>	<b># of Innovations</b>
Clear agricultural productivity increases	20
Clear pro-poor focus	16
Clear water efficiency (and access) gains	19

**Source: KIIs: site visits and WWW. Note that more than one focus is possible per innovation.**

In Table 17 below 82% of the innovators indicate that this their contributions in these areas of emphasis were increasing the resilience to climate change.

**Table 17. Innovations, Resilience to Climate Change**

<b>Assessment</b>	<b>n=22</b>	
Innovation clearly helps increase resilience to climate change	18	82%
Innovation makes negligible contribution to resilience to climate change	1	5%
Innovation somewhat or peripherally increases resilience to climate change	3	13.5%

**Source: KIIs: site visits and WWW.**

During phase 2, the team will survey additional beneficiaries and conduct further focus groups to bolster the level of responses.

The beneficiary responses to SWFF innovations were gathered through site visit impact surveys and focus group discussions in six countries for 14 innovations across six key indicators. Table 18 below outlines beneficiary responses to perceived benefits, improvements in income, and level of overall satisfaction with the innovation across 14 innovations visited in person by the evaluation team. This data

comes primarily from one-on-one survey data collected during site visits or after focus group discussions.

Larger “Ns” for innovations were captured with targeted question to all participants during focus group discussions to capture a larger percentage of beneficiaries along a more focused set of indicators. The latter limited our ability to capture and stratify by demographic data, but allowed for a large sample universe in countries. Data is not verified via observation the same way it can be during site visits, but we have triangulated this data with data already collected by SWFF.

All innovations visited in country had at least 75% of beneficiaries citing a perceived benefit (50% of innovations have a 100% beneficiary benefit level). 93% (n=231) of all beneficiaries surveyed perceive a strong tangible benefit or improvement to their quality of life since using the innovation. 82% of beneficiaries have seen an increase in income since buying or using the innovation; and 96.5% of all beneficiaries are satisfied overall with the beneficiary: both paying and non-paying customers.

**Table 18. Beneficiary Impact Responses**

<b>INNOVATION NAME</b>	<b>% BENEFITED</b>	<b>% IMPROVED INCOME</b>	<b>% SATISFACTION</b>
Innovation 1 CUT SA	100% (23)	65% (15)	71% (10 <sup>7</sup> )
Innovation 2 WGI	80% (17)	83% (15)	100% (24)
Innovation 3 Green Heat	100% (8)	100% (8)	100% (8)
Innovation 4 CUT Kenya	100% (37)	100% (4)	100% (4)
Innovation 5 MNP	74% (20)	93% (25)	96% (26)
Innovation 6 Ignitia	100% (14)	N/A	100% (14)
Innovation 7 SkyFox	100% (10)	100% (10)	100% (10)
Innovation 8 Bhungroo	Too early	Too early	Too early
Innovation 9 NewSil	100% (10)	90% (9)	100% (10)
Innovation 10 SWAR	100% (4)	50% (2)	100% (4)
Innovation 11 WASTE	86% (19)	46% (10)	94% (17)
Innovation 12 Hydroponics Africa	100% (13)	100% (6)	100% (13)
Innovation 13 Lal Teer Seed	100% (20)	100% (20)	100% (20)
Innovation 14 Practical Action	76% (32)	76% (32)	N/A
Innovation 15. ICBA	100% (25)	100% (25)	96% (23)
<b>OVERALL</b>	<b>93% (231)</b>	<b>82% (152)</b>	<b>96% (153)</b>

N/A= Not Available

<sup>7</sup> Since CUT has yet to implement, the figures indicate anticipation of benefit from being able to access forecasts from CUT on their mobiles.

Table 19 below. has been constructed to illustrate key common indicators across the 14 beneficiary surveys beneficiaries<sup>8</sup>; considerable more data is available on the degree of benefit, of improvement of income, improved access to water, improved water efficiency, and improved agricultural productivity as a result of SWFF innovations. 90% of beneficiaries surveyed stated that they had improved access to water due to SWFF's innovation, 96% of beneficiaries reported improvements in water efficiency, and 76% of beneficiaries surveyed reported improved agricultural productivity as resulting from the SWFF innovation.

Phase 2 of the evaluation will incorporate more beneficiary collected data, using local consultants to reach beneficiaries that during Phase 1 did not have a harvest or hadn't yet benefited from the innovation (largely due to newness or seasonal factors).

**Table 19. Beneficiary Responses, Water and Agriculture**

	% IMPROVED WATER ACCESS <i>YES</i>	% REPORT IMPROVED WATER EFFICIENCY <i>YES</i>	% REPORT IMPROVED AGRICULTURAL PRODUCTIVITY <i>YES</i>
Innovation 1 CUT SA	N/A	61% (14)	17% (4)
Innovation 2 WGI	N/A	100% (10)	100% (10)
Innovation 3 Green Heat	100% (6)	100% (6)	100% (6)
Innovation 4 CUT Kenya	N/A	100% (37)	75% (28)
Innovation 5 MNP	N/A	N/A	78% (21)
Innovation 6 Ignitia	N/A	93% (13)	93% (13)
Innovation 7 SkyFox	90% (9)	88% (7)	90% (9)
Innovation 8 Bhungroo	Too early	Too early	Too early
Innovation 9 NewSil	N/A	100% (10)	N/A
Innovation 10 SWAR	N/A	100% (4)	N/A
Innovation 11 WASTE	68% (15)	N/A	91% (10) too early: 7
Innovation 12 Hydroponics Africa	100% (13)	100% (13)	100% (6); too early: 7
Innovation 13 Lal Teer	N/A	100% (20)	100% (20)
Innovation 14. Practical Action	N/A	100% (91)	82% (75)
Innovation 15. ICBA	N/A	96% (23)	67% (16)

<sup>8</sup> Not all beneficiaries answered each question and surveys varied slightly by innovation to capture nuances in technical focus and innovation type.

<b>OVERALL</b>	<b>90% (43)</b>	<b>96% (248)<sup>9</sup></b>	<b>76% (218)</b>
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In the key informant interviews 100% of innovator respondents (n=21) clearly stated that SWFF contributed to the outcomes and results achieved writ large as they reported to the SWFF PMEP. 74% (14) identified the support by SWFF as being decisive contribution throughout, while 42% (n=8) identified the contribution as decisive at certain points. 32% (n=6) felt the SWFF contribution to outcomes was tangential. 91% of respondents (n=20) identified SWFF's financial contribution as being clearly linked to outcomes and results, and 40% (n=8) linked SWFF's support for organizational strengthening as critical to the achievements of outcomes.

**Table 20. SWFF Contribution**

<b>Extent of SWFF Contribution n=28</b>	
Decisive contribution at certain points	8
Decisive contribution throughout	14
Tangential contribution from SWFF to outcomes and results	6
<b>Type of SWFF contribution n=21 (innovators can select multiple responses)</b>	
SWFF contribution to organizational strengthening is clearly linked to outcomes and results	8
SWFF financial contribution is clearly linked to outcomes and results	21
SWFF contribution to technical aspects is clearly linked to outcomes and results	4

**Source: KIIs – site visits and WWW.**

**Question 4a. Did SWFF-supported projects increase water efficiency/make water more accessible? Did SWFF projects meet their water efficiency/availability targets? Overall, across all innovators, did the program meet the water efficiency/availability targets?**

Based on key informant interviews with innovators, surveys and focus group discussions with beneficiaries, as well as data validation of existing performance indicator data, there is strong evidence that SWFF-supported projects contribute to increased water efficiency and make water more accessible to customers and beneficiaries. The level of contribution and attribution of SWFF varies by innovator based on the extent of other donor funding and technical support as well as the innovator's perception of the value.

Table 21 below is based on KII respondents during country site visits and WWW; not all innovators are working in water accessibility and efficiency and within that subset not all innovators answered all related questions, thereby bringing down the Ns in the table on Outcomes and Targets in water efficiency and access below. 12 innovations showed very significant water savings and water efficiency due to SWFF supported innovations; 4 innovations (36%) did not have verifiable data.

**Table 21. Outcomes and Targets in Water Efficiency and Access**

<b>Water accessibility outcomes n=11</b>	
Changes to water accessibility not significant	1

<sup>9</sup> Please note that the number of respondents exceeds the total of beneficiaries surveyed (221) as the additional farmer respondents were included in a focus group discussion.

Changes to water accessibility not verifiable	4
Changes to water accessibility significant	3
Changes to water accessibility significant not verifiable	1
Changes to water accessibility very significant	2
<b>Water savings targets n= 15</b>	
Targets regarding water savings realistic	13
Targets regarding water savings unrealistic	2
<b>Water efficiency/savings outcomes n=20</b>	
Water efficiency – not verifiable	7 <sup>10</sup>
Water efficiency – water savings significant	1
Water efficiency – water savings very significant	12
<b>Water efficiency data n =21</b>	
Water efficiency data is based on actuals	9
water efficiency data is based on logical estimates	7
Water efficiency data is based on very rough estimates	5

**Source: KII**

Note: The source for the various categories employed above comes from the questions, codes and analysis of the KII. The responses of key informants to questions have a) been appraised by the interviewer against the evidence of site observation b) checked, where possible, against the innovation reports and c) reinforced, again checked, where possible, against survey data. **Significant**, here means evidently and incontestably materially changed, **not significant** evidently and incontestably not materially changed, **verifiable** here means that data was available to authenticate the judgment, **realistic**, here means that a target was judged by the innovation as within range and **not realistic** that a target was not within range. Since all targets are the product of joint consultation, not realistic, may indicate a change in conditions or over-confidence in making the target.

**Question 4b. Did SWFF-supported projects lead to more agricultural productivity and resilience to climate change? Did SWFF projects meet their agricultural productivity targets? Overall, across all innovators, did the program meet the agricultural productivity targets?**

Assessment of the impact of innovations on agricultural productivity was done by asking respondents questions about the types of crops grown using the innovation, changes in the number and kind of crops grown before and after the start of the use of innovations, the changes in yields from one growing season to another, the number of growing seasons with the use of innovations compared to without, the changes in inputs and resources allocated to agricultural activities with and without the use of innovations, the level of food security for each household and the community since the use of innovations, the changes in the family income, and the different ways the innovations have helped in the practice of the farmers' agricultural activities.

The innovations have been used on a wide range of crops, whether mainly cash crops (reportedly mostly grown by men) or subsistence crops (reportedly mostly grown by women), or both in some cases. They

<sup>10</sup> For innovations in seed treatment, water efficiency is harder to calculate than for improved irrigation systems e.g. ICU where figures are readily available and self-calculated

are also used to grow crops that are deemed staple<sup>11</sup> for the various countries in which the innovations are present. Innovations are also used by farmers at different stages of farming activities, such as soil preparation, sowing, weeding, irrigation, fertilizer application, and harvesting.

Overall, the innovations have shown to have an impact on the increase of the agricultural productivity by influencing different factors, depending on the innovation. In Table 22 Reported Improvement in Agricultural Productivity, 76% of beneficiaries observed an improvement of their agricultural production, specifically related to the quantity and quality of their harvest, due to the use of the diverse innovations supported by SWFF. This impact can be seen in terms of increase of the harvest for the same amount of inputs, or as a significant saving of resources (human, time, water, money, etc.) or as a more effective use of inputs (water, fertilizers, labor, pesticides, etc.) for a similar yield as in previous growing seasons. Innovations that are focused specifically on water capture and storage or water re-use allow farmers to increase the number of growing seasons per year, thus increasing the agricultural productivity and strengthening the resilience of agricultural systems to the effects of climate variability and change.

**Table 22. Reported Improvement in Agricultural Productivity**

	% REPORT IMPROVED AGRICULTURAL PRODUCTIVITY <i><b>YES</b></i>
Innovation 1 CUT SA	17% (4)
Innovation 2 WGI	100% (10)
Innovation 3 Green Heat	100% (6)
Innovation 4 CUT Kenya	75% (28)
Innovation 5 MNP	78% (21)
Innovation 6 Ignitia	93% (13)
Innovation 7 SkyFox	90% (9)
Innovation 8 Bhungroo	Too early
Innovation 9 NewSil	100% (10)
Innovation 10 SWAR	50% (2)
Innovation 11 WASTE	91% (10) too early: 7
Innovation 12 Hydroponics Africa	100% (6); too early: 7
Innovation 13 Lal Teer	100% (20)
Innovation 14. Practical Action	82% (75)
Innovation 15. ICBA	67% (16)
<b>OVERALL</b>	<b>76% (218)</b>

**Source: Surveys of beneficiaries.**

The data collected shows that specifically, in some cases, agricultural productivity was reported to have been increased by providing improved irrigation systems, or by providing high production seeds and resistance to soil salinity in addition to a low consumption of water. This agricultural productivity is

<sup>11</sup> Subsistence crops are crops grown for consumption; staple crops are those deemed the most dominant part of a population's diet

measured by comparing the previous productivity of the crop with its current productivity in the same space and same land. However, this estimation of the agricultural productivity is not uniform across innovations.

**Table 23. Agricultural productivity Outcomes and Targets**

<b>Productivity outcomes, n=23</b>		
Productivity data is based on logical estimates	8	35%
Productivity estimates are based on very rough estimates	3	13%
Productivity increases are based on actuals	12	52%
<b>Productivity increases, n=23</b>		
Productivity increases not verifiable	5	22%
Productivity increases significant	6	26%
Productivity increases very significant	12	52%

**Source: KIIs – site visits and WWW.**

Note: The source for the various categories employed above comes from the questions, codes and analysis of the KII. The responses of key informants to questions have a) been appraised by the interviewer against the evidence of site observation b) checked, where possible, against the innovation reports and c) again checked, where possible, against survey data. **Significant**, here means evidently and incontestably materially changed, **very significant** here means evidently and incontestably changed to a considerable degree, **not verifiable** here means that data was not available to

According to Table 24 below on outcomes and targets in productivity, for some innovations, productivity data is based on actual measurements and in others it is based on extrapolations from the limited available data and/or rough estimates and approximations. 87% of innovators interviewed felt their targets were realistic; 9% felt they were unrealistic.

**Table 24. Agricultural Productivity Targets**

<b>Productivity Targets, n=23</b>		
Targets realistic	20	87%
Targets realistic but not achieved	1	4%
Targets unrealistic	2	9%

Note: Since all targets are the product of joint consultation, “unrealistic” may indicate a change in conditions or over-confidence in making the target.

**Source: KIIs – site visits and WWW.**

The estimation of agricultural productivity has many challenges. For example, in the case of ICBA in Egypt, farmers and the researchers all suggested that agricultural production has increased with the use



of the salt-tolerant seeds. The productivity increases are seen as very significant as they are largely turning non-arable land into productive land. The agricultural productivity is based on actuals as the numbers are derived from the volume of crops that are brought to the station for processing. However, with this innovation, a key problem arises. As for most genetically modified or enhanced seeds, farmers must go back to the initiator to purchase the seeds for each growing season. Thus, they cannot practice the ancient tradition that is to save the seeds from the previous season for planting during the next season.

The agricultural productivity can also be evaluated in the more precise use of inputs: resources saved whether it is on time spent irrigating, value of pesticides effectively used, cost of labor spared, etc. For example, with Ignitia in Ghana, it is difficult to measure the increased productivity with any degree of certainty, but the forecasts provided by the innovation are used by farmers to know when to plant, to make a more effective use of pesticides to ensure rainfall is not diluting or washing the spray off the plant, or to make an informed decision on when to harvest so high levels of rainfall will not spoil the crop. Climate change is making weather patterns less predictable and so the forecast helps farmers to know when to plant to save as many resources as possible and be as efficient as possible.

**Table 25. SWFF Innovation Effect on Inputs**

<b>Affect on use of inputs, n=22</b>		
Innovation results in more effective use of inputs~ fertilizer and water	1	4.5%
Innovation results in more effective use of inputs~ labor ~ fertilizer ~ water	1	4.5%
Innovation results in more effective use of inputs~ labor ~ fertilizer ~ water ~ pesticides	12	55%
Innovation results in more effective use of inputs~ labor ~ water	2	9%
Innovation results in more effective use of inputs~ water	6	27%

Note: None of the respondents mentioned less effective use of inputs, but was not asked explicitly; this will be explored more in phase 2

For other innovations such as Practical Action, the agricultural productivity and the achievement of targets are more evident: “Where there used to be barren land, farmers can now be productive”. The productivity increases are 100% in most cases because the baseline was zero. Although the pumpkin growing activities are more labor intensive and most of the farmers didn’t use to grow pumpkins, the innovation allows for crops to be grown in a space where during half of the year farmers couldn’t plant anything and therefore make no money. Most beneficiaries see increases in productivity and income if they follow recommended agricultural procedures and take care of their crops. Another example of evident value added of the innovation is the case of WGI Aquaponics in Uganda. There is evidence of yield increases because farmers are not only growing more vegetables than they were prior to having the unit (because additional seeds come with the unit), but also, they are involved in pisciculture or fish farming to eat (or sell). The recycled water with the nutrients is a great fertilizer for the plants and

increases yields. The innovation also helps with food security and resilience to climate change because it reduces the reliance on fish in lakes, which is depleting, and it also provides the farmers with a more condensed and efficient way to grow vegetables and fish, providing them with a complete meal.

However, overall, little evidence has been demonstrated to adaptation to climate change or consideration of climate change when designing or implementing the innovations. This could be explained by the fact that “addressing climate change was not a direct objective but rather a contextual factor for SWFF”, as an innovator stated.

Innovations that tackle more or less the challenges of climate change are mostly the ones that allow a forecast of the weather (i.e. Ignitia in Ghana) or of the potential stress areas on farmers’ land (Future Water in Mozambique), so they can address preemptively possible problems. Other innovations whose results lead to an increased resilience to climate change are Practical Action in Bangladesh because it improves the agricultural productivity on otherwise barren land, and Skyfox in Ghana because it facilitates water storage, which is a key response to enhancing resilience to climate change and allowing farmers to continue farming regardless of changing weather patterns.

A recommendation to include the resilience to climate change as a key objective of future programs would be to integrate Climate Smart Agriculture in the design and implementation of the supported innovations. Climate-smart agriculture (CSA) is an approach that helps to guide actions needed to transform and reorient agricultural systems to effectively support development and ensure food security in a changing climate.

Farmers face risks related to price, customer demand, yield, resources, and climate that make income unstable from year to year. A critical question is access to credit, insurance and inputs; the issue of credit in African countries being associated with high interest rates. If farmers are impeded by credit constraints, they will not be able to take advantage of the different technologies that are presented to them even when these technologies are available to produce more or better.

**Question 4c. Have vulnerable groups (the poor, women, ethnic minorities) been positively and/or negatively impacted (through income, employment, water/environmental) from SWFF supported innovations? Specifically, has SWFF reduced the number of people in poverty as a result of supporting SWFF-supported innovations and has SWFF increased the number of women benefitting from SWFF-supported innovations?**<sup>12</sup>

Across the SWFF support innovations, the impacts on vulnerable groups (poor, women, ethnic minorities) has been overwhelmingly positive in terms of benefits to them, but their targeting depends both on the business model and the initial focus of the innovator (for profit vs. social engagement).

The majority of innovations target women as a primary or secondary beneficiary, a byproduct of the small-holder farming culture in Africa, Asia, and Latin America where women comprise a majority of this group. However, gender relations in Africa and Asia are complex; for many of the innovations there

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<sup>12</sup> This section relates gender in relation to access to the innovations and female-specific impacts; in Question 11 gender issues are explored in relation to women’s access as customers and to participation in management and ownership of innovations.

is a male designated as the “owner” of the innovation, but in a majority of those cases it is the wife who is responsible for the day to day management and upkeep (e.g. WGI, Hydroponics Africa). In many countries, women participate heavily in farming activities, but not as the owner of land, and therefore is the immediate beneficiary of non-income based impacts, such as time saved. For example, every Hydroponics Africa beneficiary (majority women) without prompting cited time savings as the primary benefit, even those without a harvest season completed (and therefore no income increases). Since women are the primary small-scale farmers (for both cash and subsistence) in Africa and Asia, it is they and their children that bear the burden of watering, fertilizing, harvesting, and planting. Therefore, it is they that are most impacted by the vast time savings that comes with hydroponic farming, leaving time for more income-generating activities, education, or family. Complementarily, innovations like Green Heat Uganda’s biogas water recycler, even when owned or managed by men (though not all are) affect female cooking time, also freeing them for other activities in addition to improving health by reducing smoke in the house.

Innovations such as Bhungroo and WASTE attenuate gender differences by bringing in women into the management of saving groups or of a marketing company to rebalance unequal gender relations. Innovations like Water Governance’s Aquaponics Farming that are also owned by women directly benefit female income in poor and underserved areas in the cities and border areas. 65% (16) of innovations have a clear pro-poor focus. That being said, this question is different from the one that deals with whether SWFF’s emphasis on the poor, women, ethnic minorities has been appropriate and/or strong enough in the context of both innovation and development. Or whether it has a positive or negative impact on the existence of a sustainable/financially viable business model. Additional research on gender dynamics will be completed in Phase 2.

At times, given SWFF’s emphasis on innovation and private sector enterprise but USAID’s writ large goal of development and an emphasis on poor, there is a disconnect between having a viable, profitable, and sustainable entity, and one which serves the populations USAID cares more about. For those that focus on the very poor/poor, how successful have they been at also integrating a sustainable private sector enterprise model into their business plan? This is discussed from another perspective in Question 11 in the context of the tension between commercial viability and the target market of traditional development assistance.

At times SWFF can be seen to have two potentially competing objectives that need to be carefully considered, balanced, and intentionally targeted. As we discuss below in Question 11, the business model needs to be intentionally designed to incorporate subsidies from the wealthier customers or the government to incorporate poorer farmers, while not losing profitability and sustained market presence.

During discussions with innovators and other key stakeholders, it’s clear that both profitability and sustainability as well as a target market of vulnerable populations are equally important, but it’s not clear that consistent technical support and guidance is given to 1) for-profit firms that don’t have experience in social entrepreneurship and 2) non-profits that have never had a profitability mandate or clause directly in a donor-funded contract. These are not findings nor recommendations at the moment, but considerations for exploration during Phase 2 to determine how to approach this delicate balance and provide assistance to each variation of innovator that allows them to achieve both goals simultaneously and without sacrificing quality or performance.

Complementarily to the dilemma we outline above to balance the business model side of the equation, there's the issue with targeting poorer farmers in a for-profit model who are more risk averse, with less access to cash, and generally apprehensive about adopting new technology. Perhaps a staggered payment plan or loan model will alleviate concerns, but innovators' beneficiaries cited high cost, risk aversion, apprehension to adopt untested technology, and cultural preference for traditional methods as reasons for their initially not adopting, not wanting to pay, or as reasons their neighbors haven't yet joined the model.

**Question 4d. What is the balance between public/social engagement and private/public engagement? To what extent have private funds been generated that contribute to the developmental objectives of the program both during and following SWFF awards?**

A little less than half (n=11) of innovations in the SWFF portfolio self-identify as social engagement dominant; 13 of 24 (54%) interviewed identify as a business venture from the start. However, the issue of private sector funding/investment or lack thereof has not been adequately addressed. Those that are predominantly social engagement focused need support becoming more investment friendly and profit driven, while those on the business venture side need a mix of technical assistance to push them towards financial sustainability and investor interest and investor matching.

The existence of private sector funding for SWFF-supported innovations has been low and, in many cases, non-existent. However, the majority of innovations (n=13) are not yet ready for private investment, which could explain why the majority of innovators also have no access to private investment (n=11) or no interest from private investors (n=8). Most of the innovators who are leveraging or sourcing additional funds are doing so through other public, government, or social engagement entities (host country or international donor), while actual private investment levels have been low. Table 26 shows the level of investment readiness, investor interest, and access, as perceived by the innovator during interviews, but also as assessed by the evaluation team based on existing data and site visit observations.

**Table 26. Private Sector Investment. N=23**

<b>Level of readiness</b>	
Investor not ready for private investment	13
Investor ready	9
<b>Level of investor interest</b>	
Significant interest from private investors	5
Limited interest from private investors	6
No interest from private investors	8
<b>Level of investor access</b>	
No access to private investment	11
Some access to private investment	4
Extensive access to private investment	4
<b>SWFF contribution to interest</b>	
Private investors interested based on opportunities through SWFF	7

**Source: KIIs – site visits and WWW.**

Note: private investment here refers to all funds not ascribed to SWFF itself or from government and includes an innovators own capital, grants from foundations or scientific bodies, loans, and financial costing of human resource or other support from other agencies.

According to one innovator:

Many angel investors have approached us. But most of them are focused on profit only. But we would like to work with farmers. We are looking for impact investors instead of venture capital. We are waiting for people with right values and ethics to work with us on the venture capital side.

This quote exemplifies the disconnect at times between a for-profit and sustainable enterprise and one which is pro-poor and social engagement driven. Investors are looking to profit, and the majority of innovators (even those with a matured plan to scale and sustainable future) are looking to break even and have enough funds to sustain the enterprise, but not to 'get rich.' Because the typical investor may not be well suited for the type of innovators SWFF has supported (however successful), this is an area that key respondents agree needs a closer look and more well-defined plan.

There are challenges in matching innovations to investors. According to one respondent, "the program forces innovators to seek additional funding which is a must as it allows a level of validation. SWFF has a thorough evaluation and determination of the innovators but there is not a funding strategy discussion or how to understand the market provided to the innovators. Not sure we have done enough analysis to understand what is the matching funding that innovators are bringing." This also helps demonstrate that while securing private sector funding is a core SWFF objective for innovators, little is currently done in an intentional and systematic way to help innovators identify the right funding stream or understand the financial markets in which they are operating, nor to understand what types of funds the innovators are currently bringing in to match SWFF funding and to help them determine whether those are the best fit (perspective of the FPs and IIAC)

However, key stakeholders both in the IIAC and FPs as well as innovators identify private investment (be it providing technical assistance to build the capacity or actively working with innovators to find investment opportunities) as a major weakness of the SWFF program. It is an area that has lacked in performance against expectations. Those citing the weakness do so with the understanding that this is a complex and multifaceted topic:

- some innovators are not yet ready for private investment
- there's a finite amount of resources and many other SWFF priorities – like just working with innovators to get their innovation ready for market and sold on some level of scale.

SWFF does force its innovators to seek additional/outside funding, but the source of that funding seems to largely be public sector or cost-sharing with the innovator's other projects. While cost efficient for SWFF in terms of accountability, it does not necessarily adhere to the principles of innovation in a private sector, for-profit context. If SWFF intends for its innovations to be sustainable, financially viable, for-profit entities, then the capacity of organizations to reach the level of maturity at which they're able to secure private sector funding at fair rates is a critical component of M&E and performance targets, technical assistance, and one's general trajectory down the innovation runway.

**Question 5. How much of the measured change (outcome or result indicator) in the SWFF program can in fact be attributed to the SWFF-supported projects? That is, what portion of the result is not explained by the projects examined by the evaluation?**

As quoted in a previous table 85% innovations cited SWFF as the major contributor to their success and outcomes. Either all outcomes are dependent on SWFF support or critical transitions are made possible by SWFF support. A few respondents stated that “major outcomes [were] not linked to SWFF support”, and 1 cited a relatively minor contribution. Others felt that SWFF accelerated their progress towards their objectives, from whatever stage they had started. 18 innovations reported that SWFF raised either or both their international and national profile, leading to strengthened or new partnerships, investment, additional donor funds, or an expansion of market access.

The extent to which outcomes and results are not explained by SWFF is more difficult to assess. The data from which the evaluation team presents its findings on this question is based on the perceptions of innovators and partly also on the judgment of the consultant. More work in Phase 2 can be done to integrate cost and benefit data stratified by level of other donor engagement and funding, additional technical assistance, location on the innovation runway (e.g. pilot vs. more established innovation) to determine a truer level of SWFF attribution. Based on the data the team has, the majority of the measured and reported change, can be contributed to the SWFF supported projects.

**Question 6. To what extent are there differences between the planned SWFF-supported projects and what was actually delivered in Year 1 and then Years 2-3 of the projects?**

As shown in the Table 28, row 4 below, the majority of innovators felt that targets set in year 1 (59%) and years 2 and 3 (66%) were fair, even those that weren’t met. 61% of innovators highly valued the targets and milestones in general; while 22% somewhat valued them; 17% did not value them and over the three years an average of 20% felt that the targets were unrealistic.

**Table 27. Perceived Fairness and Value of Targets**

<b>Perceived fairness of targets for Years 2 and 3, n=18</b>		
Targets for years 2 and 3 fair	12	66%
Targets for years 2 and 3 modest	3	17%
Targets for years 2 and 3 unrealistic	3	17%
<b>Perceived fairness of Year 1 targets, n=17</b>		
Year 1 targets fair	10	59%
Year 1 targets modest	3	18%
Year 1 targets unrealistic	4	23%
<b>Value of targets and milestones, n=18</b>		
Innovator did not value targets and milestones	3	17%
Innovator highly valued the targets and milestones	11	61%
Innovator somewhat valued targets and milestones	4	22%

**Source: KIIs – site visits and WWW.**

Although in Table 5 *below* innovators suggested modifications to the M&E system and complained about reporting requirements, 83% (15) of innovators said that the targets and reporting system were helpful in creating a viable business and therefore that SWFF support helped them in meeting those targets. One innovator very clearly stated that they hated the milestones, but in the end it was the

milestones that pushed them to reach their potential, expand market access, and improve their business model. Another innovator's targets and SWFF TA contributed to the redesign of the innovation, reducing input costs and time to construct, allowing production and sales to match the speed with which marketers were able to find new clients.

**Table 28. Milestones, Targets, and Reporting System**

	(n=18)	
Targets and reporting system helpful in creating a viable business	15	83%
Some targets and aspects of reporting seen as somewhat helpful	1	6%
Targets and reporting system seen as unhelpful	2	11%

**Source: KIIs – site visits and WWW.**

Without the targets pushing the innovators towards a specific and time-bound goal, there is the potential that the innovations would have stalled. Overall, based on KIIs, innovators tend to find the targets to be a heavy yoke but understand the advantages of a) improved credibility and b) better internal practices leading to viability.

As shown in Table 30 below, 58% of innovators felt that the SWFF rounds were treated differently, and 44% felt that SWFF requirements were perceived to change over time.

**Table 29. Innovator Perception of SWFF Targets, Milestones, Support, and Rounds**

<b>Awareness of Support, n=18</b>		
Innovators greater awareness of available support	12	67%
Innovators unclear about available support	6	33%
<b>SWFF Rounds, n=12</b>		
Rounds treated consistently	5	28%
Rounds treated differently	7	58%
<b>SWFF requirements clear? N=16</b>		
Same TAF pressure on targets year-to-year but better understood and responded to	1	6%
SWFF requirements (gender and poverty, for example) clear from the start	8	50%
SWFF requirements perceived to change over time	7	44%

**FINDING:** SWFF strongly contributed to outcomes and results; analysis of surveys find (90%) of beneficiaries have improved access to water and water efficiency (95%) directly due to SWFF's innovations. While the targeting and inclusion of the vulnerable depends both on the business model and social engagement, very poor groups and women are included and impacted by innovations.

Beneficiaries report an increase in agricultural productivity in terms of an increase in yields, an increase in the number of growing seasons or a diversification of the crops grown with the innovation, and a more efficient use of inputs (labor, time, pesticides, fertilizers, etc.)

Impact of innovations on resilience to climate change is less evident but can be inferred: better adaptation to climate change due to a greater availability of water and a non-dependence to rainfall agriculture, targeted irrigations, better control over climate and pests.

**RECOMMENDATION:** Measured impact is crucial to each innovators' credibility; surveys should be undertaken at modest expense to establish baseline and impact in particular in relation to inclusion (women, poor and very poor) and income and climate resilience.

Climate smart agriculture should be included in the design of future innovations. Since climate conditions impacting on agriculture are becoming pronounced express criteria on climate resilience should be included in applications to SWFF.

## Section 5: Sustainability

### **Question 11. What is the likelihood that SWFF-supported innovations will have a sustained market presence (i.e. financially and socially sustainable)?**

Given the stage at which most of the awardees are at in terms of business development, ultimately predicting the sustained market presence of the innovators involved in SWFF with any degree of certainty is not possible at this time. Their character and progress or failure is, however, analyzed here and particular consideration is given to the gender dimension in social sustainability.

A wide range of internal and external variables will ultimately determine if SWFF-supported innovations will have a sustained market presence. Regulation could work in favor or against certain innovations. Government policy on imports could have an impact, as would the creation of a more regional markets and the infrastructure to support this. Finance could be more or less easy to procure. Growth may be more or less well managed. Competitors may appear on the market or the market may change with more mechanized or larger scale operations buying out smallholders who then become laborers. The uptake of the innovation may be reliant on a pass-through organization (like the Mobile Telecom Provider for Ignitia's messaging service) or government certification for the land (like SkyFox's fish ponds). These are all aspects that innovators mentioned in interviews.

An interviewee, for instance, saw expanding markets for their product although this is not an unqualified benefit:

The prospects are good. The market for perishables is getting stronger with, at times, gluts in production seeing the markets respond across the region. Foreign owned grocery stores and major restaurants are also starting to buy more locally rather than importing from South Africa or elsewhere.

While markets may be available and expanding, there are also the challenges to sustainability of rising competition cutting into an innovation's markets.

The general sense from the interviews is optimistic, that "more innovators will be successful than originally expected across the portfolio" and that several more are already "in the black". These innovators no longer need grants and other financial assistance. In number of the interviews it was mentioned that, in practical terms, it takes ten years for such innovations to overcome initial obstacles,



start to take off and eventually become truly embedded in the economy. In the compressed three-year time frame of SWFF it may not be possible to make final judgment on sustainability.

For many of the innovations, there is a tension between commercial viability and the target market they are trying to reach. In these instances, the business model may need to be deliberately designed in such a way where wealthier consumers or government cross-subsidize poorer farmers. This is particularly true of the more investment-heavy infrastructure-based innovations (like Aqysta's water pumps or SkyFox's fishponds), where an investor would be welcomed but which may see government as the primary buyer or interlocutor in some countries. Investors would otherwise need to wait several years before recovering their investment. Product-based innovations may struggle with how best to ramp up production, which may also require significant investment while service-based information technology innovations may quickly attract customers and become viable.

There is a keen awareness among even socially oriented innovations of the need to become economically viable even as they as target the very poor. As an innovator stated:

We have reached the Break Even point from 2015 onwards. Though we are not making huge profits, we have enough work to do for the next 10 years. Socially it is challenging, however, we are giving priority to organizations that are keen to work with women.

We are working to survive in an economic climate in which competitors are keenly aware of the potential profit of our technological innovation.

Some people want to grab our idea by slightly changing our name and approaching rich farmers. Making a social program sustainable is very difficult in this country at this point of time.

For some innovations, farmers will logically gauge their risk only after two or three growing seasons (as was mentioned in the ICBA/DRC program in Egypt, for example). For farmers who are used to receiving free inputs and services, there may be a lag until they are willing to cover the full market price of the innovation or the government is willing to allow innovators to charge. Without this track record with paying farmers, investors may also not be willing to take the risk. As noted by one IIAC member, "for the kinds of nascent ideas that are involved in SWFF, it may be hard to find investment capital."

The second stage of the SWFF impact evaluation will likely have more to say on this aspect of the program. What might result is that the innovation itself may not be the moneymaker but rather the complementary products and services are what will generate the income for the enterprise. This is likely to be the case with the salt-tolerant seed varieties in Egypt, whereby the crop processing stations might in fact be what brings in the money.

The sustainability of innovations is tied into the stages of development of the innovation itself, the finance it attracts, and its market presence. The viability of the innovations within their three years of support (and beyond) is set out in Table 30 which indicates the status of innovations by the Rounds in which they entered as awardees of SWFF. Among Round 1 there are 9 graduates (those who completed the three years of funding) and 7 alumni (those who entered but did not complete the three years). All but one of the alumni were terminated after the first year. Round 2 awardees had a single grant and are not similar to other rounds. In Round 3 there are those innovations still active (7) as well as alumni (5) while in Round 4 there are 8 active and 2 alumni.

Over the whole, as yet incomplete, period 25 innovations constitute a group of succeeding or successful (current or graduate) innovations which make up 63% of the entire 40 innovations. The proportion of succeeding innovations has tended to rise over the rounds; in Round 1 56% were graduate innovations, in Round 3 this dipped to 50% and in Round 4 the succeeding innovations has risen to 80%.

**Table 30. Status of innovation by Round**

<b>Status of innovation</b>				
<b>Round</b>	<b>Active</b>	<b>Alumni</b>	<b>Graduated</b>	<b>Grand Total</b>
1	0	8	8	16
2	0	1	1	2
3	0	5	7	12
4	8 <sup>13</sup>	2	0	10
<b>Grand Total</b>	<b>8</b>	<b>16</b>	<b>16</b>	<b>40</b>

**Source: Awardee Results database**

During this period SWFF has been actively learning and developing the apparatus for monitoring, supporting and intervening to ensure progress by each innovation or to terminate support. The Innovation Investment Advisory Committee (IIAC) brings multi-disciplinary expert opinion into decisions on successful applicants and, where necessary, not to repeat an award; to terminate support for an innovation.

It seems that lack of progress towards targets is evident early in an award, of the 15 alumni, 13 did not receive support after their first year after the IIAC determined they were not progressing in milestones and targets. This early termination is possibly more decisive than in the experience of venture capital start-ups and probably reflects concern over the responsible use of public funds. Some interviewees, however, who feel that a 10-year period might be more appropriate measure of an innovation. However, SWFF does not have such resources. Since decisions are based on rigorous examination by the IIAC of each innovation on the evidence of performance, there is some detachment of TAF itself and the Founding Partners from these decisions. While SWFF support is terminated this does not mean that innovations are failures and die; many continue with other support or, on a smaller scale, keep the idea of the innovation alive. The alumni continue in the SWFF fold and are invited to conferences and often retain and engage the country and international networks they had built as awardees.

SWFF does not rush to judgment in cases where targets are not met; TAF and the IIAC give close attention to the obstacles which can cause a lack of performance which have been found to include a compressed period for implementation before an agricultural season, complications in receipt of funds, adverse weather conditions, misunderstandings about timelines and the definition of beneficiary, delays

<sup>13</sup> One Rd. 4 awardee has been given a no-cost extension until they have verifiable impact data.

occasioned by an environmental assessment, and legal disputes over ownership of a patent. From the evidence of visits, it is difficult to develop a typology of these obstacles although some interviewees are vocal in mentioning the disparity between the northern financial year (September-October) and the agricultural seasons in the south (in India roughly July-June) which, it is implied, operates to the disadvantage of southern innovations.

Recognition of these obstacles has led to changing practices such as making no-cost extensions and other measures to keep innovations from joining the alumni group. At times the advice of the expert IIAC is heard but heeded as in the case of no cost extensions.

The social sustainability of an innovation in its gender dimensions is evaluated; in markets, in participation, and in the management and ownership of innovations. Using the same KII data source, every innovation records SWFF clear contribution to their incorporating gender relations into their planning, reporting and activities. The supporting rationale for undertaking gender is presented both as a conjunctural imperative and as a strategic advantage.

Reaching the untapped markets of women smallholder farmers in emerging economies with yield increasing or labor-saving technology is an idea whose time has come. By tackling low productivity barriers that prevent women from being empowered on the farm, you can help unleash the potential of farming to be a leading driver of economic growth and food security, with women at the center of it all.<sup>14</sup>

SWFF also messages the advantages that gender integration in innovations provides in mixed teams being more innovative, in opening new segments through marketing and making for better performance and productivity gains.<sup>15</sup> There is opportunity as well as the challenge of broadening the base of the market for products and services.

The KII with innovations all accord high recognition of SWFF's prioritization of gender integration and a growing awareness of the need to achieve more equitable gender relations. At the same time while there is growing awareness there is evidence of a considerable lag in the innovation's responses to what has been termed the "hidden market" of latent or pent up demand from women farmers. This lag results in a loss in net social welfare through the ineffective market allocation of goods and services.

The responses in interviews reflect considerable unevenness. Most integration (achieving the highest levels of women participation) occurs at the customer level, there is considerable improvement in participation in management but a very uneven participation in ownership. This polarization is evident in the uneven spread at the high level and low level of participation, particularly in management and ownership.

In Table 31, 38% of innovators record women participating as customers at a high level and equally 38% report a low level of customers as women. There appears to be either market segmentation or undue attention being paid to the male customer.

**Table 31. Women's participation as customers, managers and owners**

<sup>14</sup> SWFF. August 2016. Gender report.

<sup>15</sup> Sida. 2015. Gender workshop presentation.

<b>Women's participation, customers, N=24</b>	
Women participating as customers, high level	9 (38%)
Women participating as customers, improving	6 (25%)
Women participating as customers, low level	9 (38%)
<b>Women's participation, management, N=24</b>	
Women participating at management level; achieved/high level	7 (29%)
Women participating at management level; improving	11 (46%)
Women participating in business; none, low level, unsure	6 (25%)
<b>Women's participation, business ownership, N=24</b>	
Women participating in business, highly integrated	9 (38%)
Women participating in business, improving	7 (29%)
Women participating in business, low level	8 (33%)

**Source: Analysis of coding from KII**

Note: Due to rounding off, the addition of all percentages may not equal 100%.

Analysis of responses on management and ownership show a somewhat similar dichotomy between high and low levels of participation but with two important differences. The first is that greatest improvement in women's participation appears in management (46%) and a significant proportion of innovations (38%) have achieved a high level of integration in ownership. This may indicate greater women's participation than in comparable GCF but the 33% of innovations with "low level ownership" and the 29% of "improving" indicate the remaining challenge. The analysis indicates that most of the innovations still have considerable challenges in achieving gender integration particularly in management and ownership.

Clearly SWFF has substantial material arising on the obstacles and other issues which cause an innovation not to perform according to expectations. This is an invaluable stock of well documented knowledge and despite difficulties of disclosure and of complexity, should be mined as a record or manual of successful and unsuccessful engagement with obstacles. Encountering failure is a sign of the risk that SWFF has been prepared to face and a lack of failure would indicate both low expectations and a conservative approach. While venture capitalists shun discussion of failure<sup>16</sup>, in a public body diagnosis and strategic thinking about failure is invaluable to necessary learning. A key recommendation to come out of the interviews is for SWFF to document failure more clearly and explicitly so that others may learn from what might have gone wrong.

With more information available in the second phase of the evaluation, further efforts will be placed on unpacking the future prospects of the innovators. This can be based on the diversity of their customer base, their access to finance, some analysis of the favorability of the enabling environment and other factors (such as the social aspects and specifically gender integration) noted above.

<sup>16</sup> Venture capitalists "bury their dead very quietly," Mr. Ghosh says. "They emphasize the successes but they don't talk about the failures at all." The Venture Capital Secret: 3 Out of 4 Start-Ups Fail – WSJ  
<https://www.wsj.com/articles/SB10000872396390443720204578004980476429190>

**FINDING:** Round by round more innovations are succeeding to meet the needs of the poor or very poor over the years and are gaining in viability but more could be learned of the reasons for success and failure. SWFF is engaged in learning from success and, in part, from failure. A critical aspect of innovation is the recording of, and learning from, failure.

**RECOMMENDATION:** As well as celebrating success, SWFF should find more ways to gain further learning from the evidence of failure. SWFF should find ways of systematically recording and analyzing the reasons for failure, in the dimensions of institutional stability, finance, technology and other dimensions.

**FINDING:** Without growing participation by women in the markets for innovations and in their management and ownership, innovations will be constrained in impact and hampered in sustainability.

**RECOMMENDATION:** SWFF should continue the drive for gender integration accentuating economic and organizational advantages as well as the human rights perspective.

**Question 12. Are SWFF-supported projects environmentally sustainable (i.e., did they provide positive environmental benefit, or did they do more environmental harm than good)?**

The SWFF portfolio encompasses a wide variety of innovations and contexts. For the vast majority of interviewees, no significant environmental considerations were noted and several are actively improving the environment. In support of the agricultural gains for farmers, many innovations introduce more environmentally-friendly farming practices. One interviewee stated that, “Many of the innovators already have an ecosystem-environmental consciousness and [SWFF] further emphasizes this.” As a result, in some instances, the innovators appear to have become conduits for environmental advocacy and wider environmental awareness. Amongst others, environmental benefits include:

- More efficient use of water,
- Reduced reliance on groundwater,
- Reuse of greywater and other soil conditioners,
- Changes in crops to less water-reliant varieties,
- Reduced contamination of drinking water,
- Reduced desertification, and
- Reduced or at least more targeted use of pesticides and chemical fertilisers alongside training on pest management and improving biodiversity.

Agricultural policy in many countries, regions and localities is tending towards establishing organic agricultural practices. In India, nine states—Karnataka, Mizoram, Kerala, Andhra Pradesh, Himachal Pradesh, Madhya Pradesh, Tamil Nadu, Maharashtra and Gujarat—have adopted organic farming policy or law. These policies reduce or terminate the subsidy or supply of fertilizers and pesticides to farmers. A number of innovations are engaged in the establishment of organic farming by promoting their innovation to reduce fertilizers and pesticides. These innovators are committed particularly to maintaining biodiversity, improving soil fertility and encouraging ecological pest management.

Some innovations make a direct contribution to an improved environment. Take the case of WASTE which processes both fecal sludge and organic solid waste with co-composting and sells this fertilizer to local farmers. This facility has provided the “honeysuckers” which had previously spewed the sludge into the forests at night with a ready alternative considerably improving the natural environment and water quality.

For many innovators, there may also be particular deforestation considerations due to more land being under cultivation. This brings resource use and resource management aspects more into view. Thus, overall water abstraction for farming may in fact have increased even while significant water efficiencies result directly from the introduction of the innovation or related support to farmers around more efficient irrigation technologies and practices.

There is significant confidence in USAID’s scrutiny around environmental conditions and several innovators noted that USAID had supported them in conducting an environmental impact assessment. Ultimately the environmental focus of the IIAC and USAID’s own restrictions and on-the-ground checks (also with the help of a USAID/LAB Environment Officer) have helped to flag potential environmental issues. [Recommendations: The evaluation team suspects that these could be captured more clearly in an overview analysis of the SWFF portfolio’s wider environmental impacts. For some innovators, such as those employing sensors, there may be a need for Life Cycle Analysis assessments for the products to also understand end of life / disposal issues.

**FINDING:** Among many innovators there is a commitment to green technologies, organic pesticide-free agriculture, and improved soil quality. As well as this commitment, a number of products (such as NewSil) contribute to reducing or eliminating fertilizers and pesticides. There is a keen interest among innovators to achieve organic farming through the technologies they promote.

**RECOMMENDATION:** Governments are increasingly interested in declaring agricultural zones or entire states as organic. SWFF should consider such a target in selection criteria.

## Table of Findings, Conclusions, and Recommendations

Findings	Recommendations
Section 1 - Program Relevance, Questions V.a, A1a	
There is widespread local need in the south for the innovations and potential for local ownership. The challenge is the ability of the intended beneficiaries (poor, very poor and women) to pay. Innovators have the challenge of helping generate effective demand as well as meeting existing demand from better off farmers for their infrastructure, products or services. Effective demand in the local context often includes the availability of micro-finance for poor or very poor farmers.	It is recommended that there should be greater southern participation in SWFF.

Effective demand in the local context often includes the availability of low interest rate micro-finance for poor or very poor farmers.	SWFF should consider the most effective ways of managing locally available micro-finance at low interest rates as a form of poor farmers credit without over-burdening the innovations. This will help build a stronger base of innovations and impact in areas of greatest need.
Section 2 - Program Effectiveness Questions A1b, B3, B5, B7	
The Program is effectively run, ensures close attention to detail, and has a hands-on approach with the awardees. The flow of reliable and authoritative information enables innovators and SWFF to “pivot” as new information becomes available and to take difficult decisions where necessary.	Although innovators reported good support, a variety of obstacles were reported by innovators. It is recommended that SWFF should foster more exchange of information on the barriers which innovators are encountering particularly in the critical first year and efforts to overcome them. Initiating wider links with related embassy and other programs would further enhance SWFF’s effectiveness.
The founding partners bring complementary agendas to the SWFF partnership, which meets the various needs and capacities of each agency. USAID’s effective management of the GC is highly regarded.	Greater emphasis should be given to broadening the southern membership base of the Founding Partners in a new initiative and linking these partners more effectively to the Program. Such partners could help locate and support suitable innovators particularly from the South.
Section 3 - Program Efficiency Questions B1, B2, B4, B6	
Innovators strongly appreciate the dedicated support of the TA Facility and feel it is efficiently set up, organized, and managed, provides the right kind of support at the right time, from the right people. 74% of innovators cite the TAF as being decisive in its contributions towards their success and outcomes.	In future SWFF-like programs, further reinforce innovator sustainability/viability, and programmatic (or innovator) learning from failure and adaptive management as well as continuing the reporting on the achievement of primary outcomes.
Compared to other programs, SWFF is regarded as adding “tremendous” value, specifically in terms of M&E and other reporting capabilities.	Efficiency would best be served by focusing on strengthening the enterprise in Year 1 (low-interest farmer financing schemes), moving to scale in Year 2 (additional investment), and consolidating the business plan in Year 3 (viability).
Section 4 - Impact A1c, A1d, A1e, A1h, A2, A3	

<p>SWFF strongly contributed to outcomes: analysis of surveys find (90%) of beneficiaries have improved access to water and (95%) water efficiency directly due to SWFF's innovations.</p> <p>While the inclusion of the vulnerable depends on the business model, very poor groups and women are impacted by innovations.</p> <p>Beneficiaries report an increase in agricultural productivity in increased yields, increased number of growing seasons or a diversification of the crops grown, and a more efficient use of inputs (labor, time, pesticides, fertilizers, etc.)</p> <p>Climate change resilience is less evident but can be inferred: better adaptation to climate change by increased water access and a reduction in reliance on rainfall; targeted irrigations; and better control over climate and pests.</p>	<p>Measured impact is crucial to each innovators' credibility; surveys should be undertaken at modest expense to establish baseline and impact in particular in relation to inclusion (women, poor and very poor), income, and climate resilience.</p> <p>Resilience to weather extremes in agriculture should be included in the design of future innovations as this will certainly increase their impact. Since climate conditions impacting on agriculture are becoming pronounced, express criteria on climate resilience should be included in applications to SWFF.</p>
<p>Section 5 - Sustainability A1f, A1g</p>	
<p>A critical aspect of innovation is use of the data to learn from failure. Round by round, innovations are succeeding to meet the needs of the poor or very poor over the years and are gaining in viability, but more could be learned from success and failure. It is recommended that SWFF should deepen its systematic and intentional learning from failure.</p> <p>Without growing participation by women in the markets for innovation and in the management and ownership, innovations will be constrained in impact and hampered in sustainability.</p> <p>In relation to environmental sustainability many innovators expressed strong commitment to green technologies, organic pesticide-free agriculture, and improved soil quality. In addition, a number of products (such as NewSil) contribute to reducing or</p>	<p>As well as celebrating success, SWFF should improve its systematic and intentional learning from failure. SWFF should systematically record and analyze the reasons for failure, in institutional stability, finance, technology, and other dimensions.</p> <p>SWFF should continue the drive for gender integration accentuating economic and organizational advantages as well as the human rights perspective.</p> <p>vcSince more governments now are increasingly interested in declaring agricultural zones or entire states as organic, SWFF should consider such a target in selection criteria.</p>



eliminating fertilizers and pesticides. There is a keen interest among innovators to achieve organic farming through the technologies they promote.	
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**All Annexes are in a separate file**