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Water and Energy for Food: A Grand Challenge for Development (WE4F) Mid-term Evaluation Report

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EXECUTIVE SUMMARY

Much of the world's attention is directed at food production to meet needs in the aftermath of international crises, marked by food shortages, inflation, and famines. The Water and Energy for Food Program (WE4F), is highly relevant in this current context given its focus on providing financial, organizational, and strategic resources to support innovations to upscale, increase sustainable food production, raise income among the marginalized, and promote environment and climate change. This Midterm Review (MTR) presents findings on program design, analyzing the portfolio, the promise of targets, and initial performance.

WE4F Program design

The WE4F design is based on the Securing Water for Food (SWFF) and Powering Agriculture Energy Grand Challenge (PAEGC) programs. Using these tested models, WE4F has taken a portfolio approach to achieve impact through regional units providing Technical Assistance (TA). With multi-donor support, three Regional Innovation Hubs (RIH) support a diverse set of 81 innovations to pursue their own goals (with some modification) more effectively. Additionally, through the hubs, innovations' financial resources are augmented, and their organizational capacity is strengthened through TA (for example, training, peer learning, direct advice, and (global) networking). Through the portfolio approach WE4F anticipates that 40% of the innovations will reach their targets for most indicators and 10% will achieve wide scale adoption.

The innovations range from small to medium size companies, and the grant resources allocated are comparatively modest; despite this, the expectations of WE4F are quietly ambitious. WE4F, with support from the Funding Partners, seeks build innovators' expertise to make a significant contribution to increasing food production sustainably by improving and economizing on the use of water and energy. WE4F also works to help innovations and end-users control "externalities" by promoting climate change adaptation and avoiding negative effects on biodiversity. In a broad assessment this MTR finds the design of WE4F innovative and ambitious on its main goals.

Method and approach: The evaluation pursued mixed methods with data collection through key informant interviews (KII), surveys completed by the innovations themselves, and end user surveys. In this MTR questions on Relevance and Coherence are fully answered, on Effectiveness mostly; Efficiency, Impact and Sustainability are answered with acknowledged limits due to the stage of the intervention and the available data.

WE4F Relevance

WE4F Relevance, finding: WE4F is seen as highly relevant to the needs of the countries in which it operates; it builds on existing innovations. There is a high degree of confidence in the significance of WE4F in accelerating food production in sustainable conditions. The sharply rising cost of fertilizers particularly highlights WE4F's relevance in improving yields in sustainable agriculture.

Relevance is broadly assessed both by the ownership of innovations embedded in a country and growing numbers of end users. It was found most innovation companies are incorporated in participating countries and also operate in adjoining countries in the region. With three quarters or more of the end users in the category of poorer farmers WE4F is reaching the base of the pyramid (BoP).

Recommendations:

- Highlight the innovations (in terms of costs, sizes, quantities) which have proven to be most successful in meeting the needs of marginalized groups (including women).

WE4F Coherence

Finding: WE4F is contributing to achieving the Sustainable Development Goals (SDG) relating to famine and poverty, gender equality, emission reduction and climate change adaptation, and provides avenues to reach SDGs, with a focus on the common cause of sustainable agriculture. There remains concern to get a full country alignment between the WE4F and other donor programs.

In the short time of its operation there is little evidence yet of the achievement of coherence between the innovations and national government interventions. There is keen interest in interaction between WE4F and donor activities, and between innovations and it is projected that coherence will advance over time.

Recommendations:

- RIH interventions could, at a national and regional level, present sets of innovations which help advance a particular SDG, to promote innovations as part of government efforts to attain SDGs.
- To advance coherence between the WE4F and national plans, the Annual Work Plans (AWP) could be aligned with the SDG for zero hunger and poverty, sustainable land use, gender equality, reduced inequality, climate action and innovation (SDG 2, 1, 15, 5, 10, 13, and 9).

WE4F Effectiveness

Finding: WE4F is succeeding in key measures of effectiveness by improving the capacities of innovations (on business, fund raising, etc.) to make innovation accessible to end users including those at the bottom of the pyramid.

The effect of training and support by the RIH, at innovation level, is shown in the growth of end user numbers and gross sales. The Quality of Service Survey (QoSS) provides further evidence of high levels of approval of RIH training and support in the following:

- Pre-award: support contributed to innovations' administrative and financial systems.
- Technical assistance, (especially about business subjects), received very good scores. Knowledge on marketing, BoP, and gender, on average, increased; more than 90% (all 3 hubs) which indicate a gender knowledge increase.
- Investment facilitation received very good scores. For the few reporting, it helped increase external investment; 19 of the innovations mobilized 8.6m USD in external investment; 91 partnerships were created raising the potential for additional co-funding.
- Support for an enabling environment received good scores. All comments underline the importance of removing barriers.
- Communication from the RIH goes through many channels: annual meetings, bootcamps, personal communication, and the newsletter all play an effective role

- **Monitoring & Evaluation:** overall readiness for data collection is good but data use varies by region; mostly for decision making, sales and fundraising. Respondents call for more standardized, simplified and/or automated (and yet adaptable) tools.

The evaluation's own interviews confirm this approval. For example, aspects most appreciated include the program's responsiveness, ad-hoc support, help with the company's organization and paperwork for the grant, other applications and permits. There is also scope for improving the Enabling Environment work to better adapt it to the local context.

The resulting effect of these services on the growth of innovations is anticipated: at least 40% of innovations should meet their own end user target; and 50% did.

Recommendations:

- **Pre-award:** improve documentation and tailor or simplify for smaller innovations.
- Ask that innovators more explicitly relate the intended impact of innovations to specific SDGs.
- **Technical assistance:** strengthen the promotion strategy to increase women participation at the end user level. WE4F needs to emphasize technologies (for food security) to draw in more women end users.
- **Showcase marginalized group participation:** innovations successful in meeting the needs of these groups should be highlighted in WE4F communication and outreach materials, and on the WE4F website (e.g., success stories).
- **Ensure sufficient access to finance** for innovative solutions that address the causes of the gender yield gap.
- **Enabling environment:** optimize the learning from participants' own expertise, or local experts, and business member organizations, to find context-appropriate ways and unite forces to address barriers.
- **Extend end user support:** link new finance to encouraging innovations develop innovations (design) and training materials accessible to more marginalized end users
- **Examine training methodologies** to see if women's expertise could be used in dealing with barriers, work to focus training to produce action plans to advocate and address bureaucratic obstacles.
- **Consider gender mainstreaming business plans** (e.g. on job and pay equality) and tailoring innovations to the needs of more marginalized groups.

WE4F and Innovations Efficiency

Finding: WE4F is efficient on the basis of the following measures; firstly, as a program in achieving the greatest impact in the deployment of relatively limited resources available and secondly in terms of the value arising from fund management in comparison with other Challenge Funds.

Findings on the portfolio approach: WE4F overall efficiency can be assessed on the basis of the use of relatively limited resources to achieve impact. This strategy is constructed on the design proven to be efficient in the previous SWFF and PAEGC programs with rigorous monitoring and continuous interaction between the RIH and innovations. The WE4F model has evolved from these prior programs with intensive risk and performance management to achieve greater efficiency.

Innovation progress is measured by standard and program-specific indicators which are assessed against their output milestones. The proportionally increased costs associated with more intense fund management, TA and capacity building inputs are compensated by the active capture of learning and time-targeted goals.

WE4F constrains costs through established networks of local consultants. The portfolio approach allows diversity in method and subject and encourages out-performance which compensates for modest or failing results in innovations which may have value in other dimensions. WE4F anticipates that innovations can raise external funds many times larger than the initial grant; this is confirmed by initial findings. This compares favorably with other programs.

The overall efficiency of WE4F depends on the quality of its management of time, resources, skills, and budgets necessary to accomplish all these interrelated tasks. At its core, WE4F anticipates high efficiency with modest targeted funding and advanced practices in learning, reporting, and planning leading to elevated (but mutually agreed and carefully planned) results. This devolves more responsibility to local actors which involves scheduling teams to identify the fastest, cheapest, or most suitable approach.

A large number of diverse innovations is a key feature of WE4F which makes it distinct from “traditional” interventions. This “managed portfolio” approach is more than numbers alone, it is based on diversification which involves investing in dissimilar innovations which have different kinds of financial and capability assets which are combined in anticipation of maximizing return for many complex risks. Operations are also spread through decentralization at various levels: from the centralized Secretariat, to Hubs, and ultimately to the innovations. Overall, this could prove to be more efficient in maximizing returns from relatively modest resources. There are also RIH reports of early synergies in-country between WE4F goals and donor country initiatives and other openings; learning from results will increase efficiency over time.

Recommendations:

- Continue data exchanges to accumulate comparative quantitative measures of efficiency across Grand Challenge Funds.
- The Monitoring, Evaluation, and Learning (MEL) system is complex and could be leaner, more efficient if possible. The Performance Monitoring & Evaluation Plan should add navigation/headings and an explanation on how targets are set at different levels (innovation, hub, program levels. There should also be explanation of how targets are set and may be changed, and indicator standards and methodology refined.
- Share summaries of key MEL information and reflect on the summaries in bootcamps to yield valuable feedback.
- Adopt leaner and less administrative MEL system and reporting formats for SMEs.

WE4F Impact

Finding: Large increases in food production are reported by the limited number of innovations reporting. There is increased use of renewable energy particularly with solar water pumps. The transition to renewable energy is gaining strength. In relation to energy savings, most innovations met their year 1 targets. At the crucial level of end users, of those surveyed most reported an increase in income, more so among women.

There is considerable evidence of increased water accessibility, and users report increased availability and access to water, but water savings are not yet reported on any scale. Some concern is expressed about the overuse of water resources, which could be leading to falling water tables.

WE4F's goal is to increase food production and productivity, achieving higher yields while making water- and energy-savings. As the Evaluation has data on production but not on yield, it is not yet possible to quantify aspects of productivity increase to know whether increased production is due more intensive farming or from an increase in area farmed.

End users, who are keenly interested in increasing yields, are confident that the innovation is assisting as, a high proportion are committed to recommend the innovation to their peers.

Further detailed surveys are needed to confirm the proportion of smallholders rising out of poverty through the intervention. While the data does not show a widened range of crops cultivated, there is evidence of greater yields and of new combinations of animal husbandry with crop production. Data collection is needed to assess the relative contributions of various elements to which change can be attributed: water, energy, the innovation, or external factors.

In relation to end users, the first year results, in two of three regions addressed in this MTR show a growth of 254,354 end users which is 11% of the life of project (LOP) target of 2,500,000. In the long run, this rate of growth across the combined numbers of all 81 innovations, will bring the LOP target within range and beyond. The projection is for this target to be exceeded.

End users report an improving level of women's participation (approaching 30% of all end users) and some increase in income. Positive impact on marginalized groups in income, water/environmental, energy/environmental is also reported, but not in job creation in innovations.

Set against the global struggle to improve food security, the current achievements are modest. The key question in effectiveness and efficiency, however, is whether the model of WE4F (which could be described as a "managed portfolio") can be used more widely to effect greater impact with greater resources.

Recommendations:

- Give closer and systematic attention to the issue of water savings and the challenge of water overuse and falling water tables by following procedures introduced by IWMI for groundwater responsive solar irrigation.
- Promote innovations' success stories in achieving significant savings in energy and water.
- Further end user surveys to confirm income increases for smallholder farmers, and the reasons for changes.

Recommendations for present phase and extension:

- RIHs and innovations should continue to focus on calculating, capturing, and reporting crop yields; changes in crop yields need consistent examination over time to identify factors in patterns and change.
- The elements in increased food production need to be researched on the basis of establishing past and present yields. This should confirm for selections of farmers -

that yields are increasing and conclude that these are based on sustainable intensive farming rather than greater use of natural resources.

- The RIHs are already recording yields of various crops and areas; this needs to continue as a focus in recording and drawing a selection of farmers into monitoring as active participants. The resulting insights could be shared with other farmers using the same crops and innovations and with other RIH and innovations.
- Discuss the reasons for low levels of food processing to understand the challenges involved. As WE4F grows the food production data needs to be rigorously examined.

Sustainability of WE4F

Finding: Sustainability is being approached and, in the course of time, will be achieved by a proportion of innovations and their associated end users. Sustainability in the context of WE4F is increased food production undertaken by large and small farmers drawing on less energy and water and making sustainable use of land. Sustainability also includes the use of other natural resources and maintaining and improving biodiversity.

The achievement of sustainability of WE4F depends on the viability of innovations (expanding end users, making a profit, creating jobs) as well as the improving farming practices leading to sustainable food production. There are environmental considerations in farming activities including the effects on land use, natural resources, and biodiversity as well as carbon emissions and socioeconomic considerations.

In relation to financial sustainability currently 33% of innovations make a profit (making profit is defined in WE4F as passing the threshold of 8% EBITDA); that leads to the finding that more than 8% of innovations are meeting WE4F's target of making a profit at this measured standard. During interviews the respondents reported themselves confident of continued financial sustainability.

Environmental sustainability in the context of WE4F primarily relates to water and energy efficiency. WE4F has to achieve impact by simultaneously reducing the use of non-renewables (and emission) and the use of water. WE4F has an energetic system to assess sustainability issues and build in mitigation strategies, using the Initial Environmental Examination (IEE) and Environmental Mitigation and Monitoring Plan (EMMP) tools, as part of compliance.

The IEE and EMMP tend to focus on on-site and immediate effects without consistently accounting for or addressing impact beyond the immediate intervention. Such factors along the lifecycle include effects on natural resources more removed from the farm, at source of materials or end of use etc. In the WE4F approach these are mostly 'externalities'. There were no reports of negative feedback from marginalized groups *participating in an* innovation.

Recommendations:

- Since KPI1 (profit) reporting is uneven, specialized TA support should be provided as needed.
- Water pump promotion (solar-powered or otherwise) should be conditional, i.e., tied to a water-saving package. Solar panel grants should be on condition that these are sourced from countries not using forced labor and take back old panels at end of use
- As WE4F progresses, more greenhouse gasses (GHG) data is needed; more innovations need to share how they measure GHG emissions; the methods chosen

could include the effects of changes in land use. Analysis of the data, innovation by innovation, could reveal more trends and patterns in reducing GHG emissions.

- Provide assistance to weaker performing innovations, with careful target setting.
- Raise government awareness on innovations serving public goals on climate change, e.g. in the Nationally Determined Contribution, to further government efforts to improve the Enabling Environment and secure funding for WE4F type innovations.
- A simple tool (based on lifecycle assessment tools) is suggested below to assist farmers and innovators (together) to identify environmental and socioeconomic effects of an innovation; such a tool serves learning purposes and helps find win-win solutions (or) to manage trade-offs.

Recommendations for the extension:

- Choose more efficient yet wider-scoped ways to identify environmental and socioeconomic trade-offs along the innovation lifecycle. A simple tool is suggested below (using the lifecycle analyses as theoretic frame, but tailoring it and using it selectively, and only for a selection of farmers) can help innovators and end users together, to identify effects along the lifecycle, and especially at farm level, e.g., to capture effects of increased land use, and waste, on natural resources and biodiversity, find trade-offs and win-win solutions. This tool is for learning purpose, and can be tried out in this phase, as an alternative to the more compliance-oriented IEE
- A comparative discussion of USAID and EU policy on environmental sustainability would be fruitful in developing a holistic approach and providing common tools and monitoring.

WE4F is ambitious but is constrained in its resources to meet a global challenge. It must spread its resources across a wide range of innovations particularly to the programmatic level. Despite this, the portfolio of innovations may prove the value of diversity in spreading risk and averaging returns to achieve defined targets as initial projections indicate. **Since the portfolio model is likely to lead to the achievement of most key targets, additional funding is warranted.**

The preliminary conclusions are:

- Three key measures demonstrate WE4F's viability: increasing food production, a rising number of end users who find the innovations improving their practices, raising income, and improving food security. This is matched by the financial resilience of innovations which make such impacts possible. Early results show increased food production, and end users targets being achieved.
- The forward projection of existing end user trends shows that WE4F will meet the LOP target. The projections are positive and accumulatively these overall targets will be met. The financial resilience of innovations needs further examination over time.

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ACRONYMS

AAR	After Action Review
ACTED	Agency for Technical Cooperation and Development
ADS	USAID Automated Directives System
AWP	Annual Work Plan
BFS	Bureau for Food Security
BMO	Business Member Organizations
BMZ	German Federal Ministry for Economic Cooperation and Development
BoP	Base of the Pyramid
CEO	Company Executive Officer
CFI	Call for Innovations (these are sequenced: CFI1, CFI2, etc.)
CKM	Communications and Knowledge Management
CLA	Collaboration, Learning, and Adapting
CLEER	Clean Energy Emission Reduction (Tool, see: www.cleertool.org)
CO/COR	Contracting Officer / Representative
CPAR	Contract Performance Assessment Report
DEC	Development Experience Clearinghouse
DELC	Dexis Evaluators & Local Consultants
DEXIS	Dexis Interactive, Inc. dba Dexis Consulting Group
DFI	Development Finance Institution
Ef	Energy-focus
EA	East Africa
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
EBRD	European Bank for Reconstruction and Development
EDGE	Enhancing Development and Growth through Energy
EE	Enabling Environment
EEA	European Economic Area
EGB	Employee Gender Breakdown
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EMMP	Environmental Mitigation and Monitoring Plan
ESG	Environmental, Social and Governance (guidelines, criteria)
EQ	Evaluation Question
ES, WES	External Surveyor, WE4F External Surveyor
EU	European Union
FAO	Food and Agricultural Organization
FAQ	Frequently Asked Questions
FGD	Focus Group Discussion
FMO	Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden (FMO)
FP	Founding Partners
FTF	Feed the Future
GA	Grant Agreement
GCD	Global Capacity Development
GCF	Grand Challenge Fund
GD	Global Development Alliance
GDP	Gross Domestic Product
GDPR	General Data Protection Regulations (EU)
GH-Pro	Global Health Program Cycle Improvement Project
GIN	General Indicator

GIZ	Gesellschaft für Internationale Zusammenarbeit GmbH
iBEAM	Improving Business Environments for Agile Markets
ICT	Information and Communication Technology
IEE	Initial Environmental Examination
IF	Investment Facilitation
IFI	International Finance Institution
IIAC	Innovation Investment Advisory Committee
IoT	Internet of Things
IM	Impact numbered in relation to the ToC
IP	Implementation Partner
IRC	International Rescue Committee
IWMI	International Water Management Institute
KII	Key Informant Interview
KM	Knowledge Management
KPI	Key Performance Indicator
LC	Lead Consultant
LCA	Life Cycle Assessment
LE	Local Evaluators
LOE	Level of Effort
LOP	Life of Project
M&E	Monitoring & Evaluation
MCC	Millennium Challenge Corporation
MEL	Monitoring, Evaluation and Learning
MENA	Middle East and North Africa
MFA-NL	Ministry of Foreign Affairs of the Kingdom of the Netherlands
MTR	Mid Term Report
M&E	Monitoring and Evaluation
NGO	Non-Governmental Organization
Norad	Norwegian Agency for Development Cooperation
NpM	Platform for Inclusive Finance (Dutch)
OC	Outcome numbered in relation to the ToC
OECD DAC	Organization of Economic Co-operation and Development, Development Assistance Committee
PAD	Project Activity Document
PAEGC	Powering Agriculture Energy Grand Challenge
PII	Personal Identifiable Information
PIRS	Performance Indicator Reference Sheet
PMEP	Performance Monitoring & Evaluation Plan
PMU	Project Management Unit
POC	Point of Contact
PPP	Public-Private Partnership
Q&A	Questions & Answers
QCA	Qualitative Comparative Analysis
QoS(S)	Quality of Service (Survey)
RAC	Regional Advisory Committee
RAS	Recirculating Aquaculture System
RFP	Request for Proposal
RIH	Regional Innovation Hub
SSEA	South & South-East Asia
SCA	South & Central Africa

SC	Senior Consultant
SDG	Sustainable Development Goals
SEWOH	One World No Hunger (GIZ program)
SGE	Small and Growing Enterprises
Sida	Swedish International Development Cooperation Agency
SME	Small & Medium Enterprise
SOW	Statement of Work
SPIS	Toolbox on Solar-Powered Irrigation Systems
STTA	Short Term Technical Assistance
SWFF	Securing Water for Food
SWP	Strategic Work Plan
TA, TAF	Technical Assistance, Facility
TBD	To Be Decided
ToC	Theory of Change
UNDP	United Nations Development Program
USAID	United States Agency for International Development
USG	United States Government
WA	West Africa
WE4F	Water and Energy for Food: A Grand Challenge for Development
Wef	Water-Energy focus
WES, ES	WE4F External Surveyors
Wf	Water-focus
WFP	World Food Program
WO-WL	Women-Owned/Women-Led
WWW	World Water Week

Acronyms for data classification

The various tables in this report have data, i.e., text or amounts with a code is used to indicate:

ND	No Data – Used when there is a target for an indicator and there should be results, but no information was provided or possibly no documentation was provided, so the results were recorded as 0; another possible issue was that this information was to be shared by the external surveyor but is not yet available.
NA	Non-Applicable – Used mostly for innovators that have been terminated from the program, and there is no longer information coming from these innovators
NAWP	Not part of the AWP – Used when the indicator is not part of the AWP, so there is no target for this indicator for the innovator, and the innovator is not tracking this information.
OT	One Target – Used when there is only one target provided for multiple countries that are part of the innovator’s project; targets or results were not disaggregated by country.
NT	No Target – Used when there is no target provided for that Year or LOP in the AWP, but there were other targets for other milestones.
NYM	Not Yet Measured – Typically used when projects or innovators started late; this is often the case for CFI2, CFI Iraq and SCA.

DEFINITIONS

Stakeholders – A result (in a ToC) is a change in stakeholder behaviour e.g. *end users* producing more effectively/efficiently/sustainably. Thus, it is important to define them and categorise (food, energy and/or water indicators are proxy).

End users – firms, individuals or organized groups of individuals who use WE4F innovations; they are the ‘customers in the market’ (related to IM2) and can also be identified as ultimate beneficiaries (related to IM4). In this group there are subdivisions:

- **Smallholder farmer households** – categorised by household income (quintiles 1, 2)¹
- **Larger farmer households** – categorised by household income (quintiles 3, 4, 5)
- **End user household members** (f,m); number of innovator clients/households multiplied by average household size in a country (or something like it)
- **Processing entities** (companies, cooperatives, or farmer households) –
- **Providers of inputs or services for farming** (this includes middlemen and transporters, as providers of marketing services)
- **Marginalized groups:** end users that typically face more barriers to access innovations; to further define at national level (weighing gender, caste, ethnicity, distance to markets & services and other factors); in this report, indicators for marginalization are disaggregating for gender and income
- **Rural communities.**

Innovations: Companies that are supported by WE4F so that they can upscale the innovations WE4F is interested in. In this report, this group can be subdivided according to:

- WE4F support: the companies are recipients of grants (“grantee”), or only TA
- WE4F engagement history: ‘legacy’, CFI1 and CFI2
- Innovation focus: Water only (Wf), Energy only (Ef) or both (Wef)
- Innovation type (subcategories of the innovation focus): see Annex 8
- Women-led/-owned innovator enterprises: enterprises where a) >50% ownership/stake is held by a woman/woman; or b) at least 1 woman is in a senior management position or ≥30% of the board of directors are women (where a board exists); or c) women make up ≥50% of management and are a part of daily operations and decision-making in cases where a board does not exist.

Country-innovations: This is where innovations are counted for each country where they operate (with WE4F support); so then, innovation names are repeated.

Productivity: The term is often used but not defined in the project documentation; it is in the overall goal and the focus areas of the project, together with ‘economic productivity’ and ‘agricultural sector productivity’, in annual reports and in the SOW. In EQ1g² productivity is used alongside climate change adaptation, however, some EQ1g questions seem to refer to production (-targets; there are no productivity targets).

USAID in WE4F³ points out that a discussion of productivity is ‘out of scope’, or in a grey area, where use of natural resources (land and -quality) is concerned. Here, productivity is defined in restricted terms: **agricultural production minus and water and energy inputs (per ha, so it excludes labour and other natural resources).** The main impact question is using

¹ The income criteria used here as it is more universally applicable. WE4F also categorizes smallholders by farm-size, e.g., in the PMEP July 22, smallholder farms are less than 5 ha, in our surveys the majority of smallholders are found to have farms of less than 1 ha. Another term used by WE4F and not defined: “customers in the market”

² EQ1g: Did WE4F-supported projects lead to more agricultural productivity and adaptation to climate_change? Did WE4F projects meet their agricultural productivity targets? Overall, across all innovators, did the program meet agricultural productivity targets? What were the unintended effects of WE4F supported projects on agricultural productivity?

³ Personal communication USAID, L. McMahan, on January 20th 2023)

this definition: are we producing more food with more efficient use of water and energy? When farmers may take decisions that negatively affect the environmental, that is an ‘externality’; it is given attention, but only for secondary measures. “We’re happier if poor people had some part in production, and benefits, and if there is no net environmental harm”.

Lifecycle Assessment (LCA) vs Environmental Impact Assessment (EIA): EIA are commonly used in the world and also by USAID, in WE4F, to assess an innovations’ environmental impact at grant approval stage. It originates as an instrument for political decision-making and is embedded in national legislation in many countries, subject to rules, and compromises. EIA are rather ‘rough’ analyses with a focus on *on-site* effects of a process; the scope is limited in space and time, it often neglects a large amount of the actual environmental impact (indirect effects may be higher) – a big point of criticism against EIA. LCA can be more detailed and in-depth, taking into account up- and down-stream activities throughout the entire life cycle of a project.⁴

Justification for introducing the word lifecycle here is that it serves as a proxy for ‘along the value chain’ which is mentioned in several indicators and EQ; EQl, EQm and EQn require to take a look beyond the economics of crop production and consider (unintended) effects or trade-offs beyond just production: emission, natural resources (including but not exclusively ground water), biodiversity, and socioeconomic effects on marginalised groups or rural communities. The term value chain is often used in more restrictive ways, limited to factors that can be monetarised.

⁴ Adapted from: <https://ecochain.com/knowledge/environmental-impact-assessment-eia-how-is-it-different-from-lca/>

1 INTRODUCTION

The WE4F program

The Water and Energy for Food (WE4F) Grand Challenge for Development program launched after an agreement between the German Federal Ministry for Economic Cooperation and Development (BMZ) through GIZ, the European Union (EU), the Ministry of Foreign Affairs of the Government of the Netherlands (MFA-NL), the Norwegian Agency for Development Cooperation (Norad), the Swedish International Development Cooperation Agency (Sida), and the US Agency for International Development (USAID). WE4F was announced at the World Water Week 2018 and launched at the Social Capital Markets 2019 signature event in San Francisco, California, the \$85 million (€80.5 million) program capitalizes on the lessons learned from its predecessor programs, Powering Agriculture: An Energy Grand Challenge for Development (PAEGC) and the Securing Water for Food (SWFF) Grand Challenge. These stated that grants alone will not help innovations scale and that technical assistance (TA), and investment facilitation are necessary to help innovations sustainably grow.

The WE4F mission is to upscale food-production related innovations and strategies that focus on the food nexus to water, energy, or both. WE4F's objective is to increase sustainability of agri-food value chains by producing more food with more efficient water and energy usage and address environmental sustainability and climate change adaptation in developing countries and emerging markets, with a particular focus on the poor and women.

To achieve its mission, WE4F, through its Regional Innovation Hubs (RIHs), works with multiple stakeholders, including partners from the private sector, non-governmental organizations (NGOs), government offices, research institutions, and other donors who share the common goal of increasing food production through sustainable and more efficient water and renewable energy usage while reducing pressure on natural resources.

WE4F provides funding to innovations to achieve greater water and energy efficiency in farming and processing, to attain higher agricultural yields and better processing outcomes. Each innovation is unique in its own rationale and intervention.

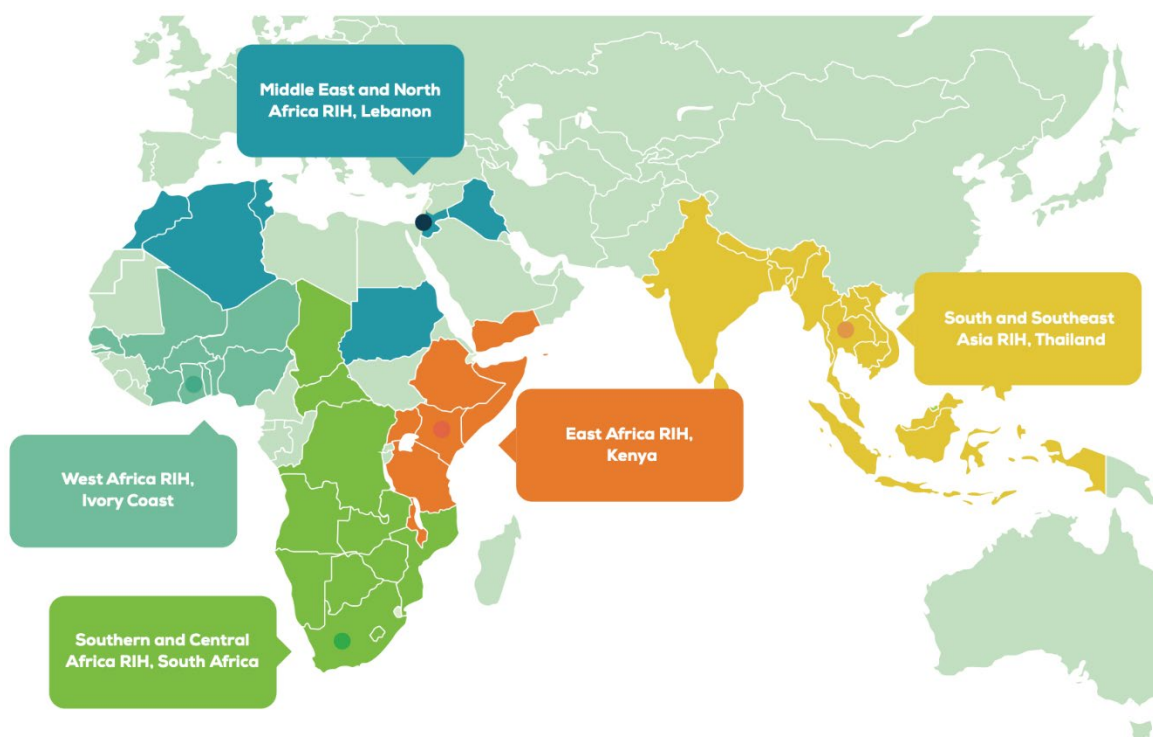


Figure 1: WE4F intervention areas and countries

WE4F is implemented in five regions: South and Southeast Asia (SSEA), Middle East and North Africa (MENA), East Africa (EA), West Africa (WA) and South-Central Africa (SCA). In 2020 activities started in SSEA, MENA, EA, and WA. This MTR looks at the MENA and SSEA and SCA regions.

MENA Region	WA Region	SCA Region	SSEA Region	EA Region
Algeria	Benin	Angola	Afghanistan	Ethiopia
Egypt	Burkina Faso	Botswana	Bangladesh	Kenya
Jordan	Cote d'Ivoire	Central African Republic	Bhutan	Malawi
Iraq	Ghana	Chad	Cambodia	Rwanda
Lebanon	Senegal	Democratic Republic of the Congo	India	Somalia
Morocco	Mali	Eswatini	Indonesia	Tanzania
The Palestine Territories	Niger	Lesotho	Laos	
Tunisia	Nigeria	Mozambique	Malaysia	
Sudan	Togo	Namibia	Myanmar	
Yemen		South Africa	Nepal	
		Zambia	Philippines	
		Zimbabwe	Singapore	
			Sri Lanka	
			Timor Leste	
			Thailand	
			Vietnam	

WE4F aims to:

1. Increase food production along the value chain through a more sustainable and efficient usage of water and/or energy
2. Increase income for base of the pyramid women and men in both rural and urban areas.
3. Sustainably scale innovations' solutions to meet the challenges in the WE4F nexus
4. Promote climate change adaptation, environmental resilience, and biodiversity through the sustainable, holistic management of natural resources and ecosystems.

These aims are leading the WE4F Theory of Change (ToC), at the impact level: see Annex 6: WE4F Theory of Change. Linked to the results, WE4F developed 10 Key Performance Indicators (KPI) and 44 General indicators (Gin); the KPI are listed in Annex 2. To help put the performance indicators into context it is important to note that using the SWFF model, WE4F expects that 40% of the innovations will reach their targets (or be within 80% of the target). Also, with the portfolio approach WE4F understands that not every innovation will contribute to every KPI. For example, some innovations will focus more on energy savings, and others on water savings.

COVID-19 threats, constraints, and mitigation

During the inception and early phases, the COVID-19 pandemic weighed heavily on the development of WE4F. The Secretariat took on a multi-level set of acts in mitigation to lessen the impact on innovations, investors, farmers, and other key ecosystem actors. Activities implemented to ease the COVID-19 risks included adding mitigation measures into RIH work plans, organizing virtual events and expediting CFIs so financial and nonfinancial help to quickly reach innovations and also added dedicated COVID-19 support.

There were inevitable delays-on the launch of the CFIs and a negative impact on funding and Tas.

Equally there was geopolitical instability during the early stages of implementation. The MENA RIH, for example, faced a devastating explosion in the port area of Beirut, Lebanon, on August 4, 2020 which destroyed its center of operations. The planning and kickoff of MENA was delayed by several weeks, but the RIH team adapted quickly and became fully operational before the end of 2020. Then from late February 2022 there was the invasion of Ukraine leading to leaping prices in oil, gas, and grains. There were also national factors: increasing power cuts hampered the SCA operating in South Africa.

Deteriorating environment

The international crises led to the deterioration in WE4F's environment. In SSEA and SCA there was immediate hunger and water insecurity with the possibility of an increase in extreme poverty by 148 million people (20% of the population internationally), increased emergency food assistance and water insecurity. This crisis, however, also made the goals of WE4F increasingly relevant. The agriculture sector showed tremendous resilience and helped growing numbers rebuild their lives and the need for related small and medium enterprises (SMEs) increasingly relevant.

COVID-19: Pivoting to reinforce strategy

WE4F's leadership was acutely aware of the negative impact of COVID-19 on innovations, investors, farmers, and other key ecosystem actors. Responses to the short- and long-term risks included integrating mitigation of impacts into RIH proposals and work plans, organizing virtual events, expediting CFIs so financial and nonfinancial help could quickly reach innovations, working on a guarantee mechanism for future use by eligible innovations, sharing information such as impact-investing trends with innovations, and forging partnerships with different external partners.

Specifically, for example, the SCA undertook an Investment Landscape Mapping Report to develop a responsive approach. Questions relating to COVID-19 impact were integrated into interviews with innovations, investors, and service providers. The increased cautiousness in deploying capital due to uncertainties and the inability to conduct due diligence as a result of travel restrictions have been taken into account in this MTR.

Overall, WE4F works to build resilience and confidence through such measures as guarantees for future use by eligible innovations, sharing information such as impact-investing trends with innovations, and forging partnerships with different external partners.

Impact on RIHs

The hubs faced pandemic-related challenges with lockdowns and logistical challenges. Each hub faced travel restrictions, both local and regional, which led on to difficulties in team coordination, penetration of local markets for recruiting, and engagement with innovations, investors, and partners. Budgets were stressed by cost increases in travel and fuel which affected whole regions.

COVID-19 constraints and impacts included:

- Delays in launches and in financial support
- Logistic challenges and rising travel costs
- Reallocation of anticipated funding to fight the pandemic
- Canceled or reduced orders faced by innovations
- Delay in provision of Technical Assistance to innovations
- Challenges in exercising due diligence in selection and follow-up of innovations
- Data reporting delayed due to the effect of COVID-19 as innovations struggled to report results on all indicators particularly relating to end users as external surveyors could only enter the field in late 2021
- Postponement of innovation peer-to-peer discussions learning from challenges.

All hubs faced challenges in assembling local staff and commencing operations with lockdowns, travel restrictions, and faced shocks in supply chains with, potentially, lasting impact on women and the poor. With such a sharp decline a long and slow recovery is likely to impact many businesses and investment opportunities. These factors have to be considered in relation to gauging the effectiveness and impact at a Program level and, indeed, at all levels.

Adaptation and Mitigation measures included:

- Much greater use of virtual communications
- Shifting hubs to virtual working mode to overcome logistical logjams
- Pivoting planning to meet new challenges in delivering on Y1 milestones by adjusting Y2 and Y3 targets
- Shifting Y1 to Y2 targets as potential staff candidates did not want to leave existing positions
- Shifting TAs to Y2
- Conducting site visits and training courses virtually.

Each RIH's local roots, vast networks, and thorough understanding of the corporate landscape and markets helped ensure outreach to and engagement with the right partners and enterprises. In the case of MENA, pivoting and adapting quickly enabled the team to successfully deliver on key Year 1 milestones.

It is hard to separate impacts on the hubs and innovations. MENA mentions delays in relation to: Abu Erdan, Alva Tech, Platfarms, SuWaCo. In SSEA innovations with delays included aQysta, ATEC (Bangladesh), ZooFresh Foods, Gham Power, Husk Power Systems, Oorja Development, Punam Energy(Onergy Solar), Sumba Sustainable Solutions, Tun Yat.

Impacts on end users

Some regions experienced high levels of infection in rural communities as well as urban areas. In India, some farming communities reported COVID-19 illness and death, and cut back in buying innovations. While there were fewer lockdowns in villages than in cities, there was a state of trauma and disturbance. In the examination of EMMPs in Section 3.6.3 there are more details on COVID-19 impacts on end users.

Structure of the Program

Central to WE4F's operation are the hubs which operate in the three regions (SSEA, MENA, and SCA). Each hub works to the same key performance measures but came into operation in different sequences.

The SSEA RIH is based in Bangkok, Thailand, and supports enterprises in 15 countries: Bangladesh, Bhutan, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Philippines, Singapore, Sri Lanka, Thailand, Timor-Leste, and Vietnam. The MENA RIH is based in Beirut, Lebanon, and includes innovations in the following countries: Algeria, Egypt, Iraq, Jordan, Lebanon, Morocco, the Palestinian Territories, Sudan, Syria, Tunisia, and Yemen. The SCA RIH is based in Pretoria, South Africa, is administered by Tetra Tech and includes innovations in South Africa, Zimbabwe, Zambia, Botswana, Mozambique, Namibia, Angola, Chad, and the DRC.

With multi-donor backing, the hubs support a diverse portfolio of 81 innovations to pursue their own goals (with some modification) more effectively. For example, via the hubs, the innovations' financial resources are augmented, organizational capacity strengthened through TA in the form of training, direct support, and innovation networks are opened globally. For more details on the portfolio refer to section 3.4.

WE4F Portfolio overview: by region and by engagement history (legacy, CFI)

At the time of reporting (August/September 2022) WE4F was active in SSEA, MENA, and then subsequently in SCA, which brought the total innovations to 81. An overview of all innovations are

provided in Table 1, organized by WE4F support and by region, and Table 2, by WE4F engagement history and by region.

Table 1: Innovations by WE4F support, by region

WE4F support	SSEA	MENA	SCA	Total
TA only	8	6	3	17
Grantee	22	30	8	60
Terminated* (no data for these)	2	2	0	4
Total	32	38	11	81

* Because they did not reach their milestones

Source: WE4F Innovator List_As of July22.gsheets

As is made clear in the definition of terms, the Grantee is the primary form of financial support and is the focus of this evaluation. The TA Only innovations have, as the term implies, only TA support and have a lower-level responsibility in reporting results.

Table 2: Innovations by WE4F engagement history

WE4F engagement history	SSEA	MENA	SCA	Total
Legacy*	5	0	2	7
CFI1	14	17	9	40
CFI1 Iraq**	0	8	0	8
CFI2 (no data yet)	13	13	0	26
Total	32	38	11	81

*: legacy is from a previous program

**: Iraq is listed differently in the M&E data: although labeled as CFI1, there is currently no data for these innovations

Source: WE4F Innovator List_As of July22.gsheets

Further description of the innovation portfolio is provided in Table 2. Grantees are defined by cohorts, i.e., by the two Calls for Innovations; the CFI1 innovations have had support now for more than 12 months with support starting in spring of 2021 (Awards announced in March 2021 and signed in May 2021). In addition, there were bootcamps for MENA and SSEA in May 2022 for CFI1 and CFI2. The CFI2 innovations just started to receive support and have yet to report on results. The CFI2 grants were signed in mid-June 2022. In addition, there is the group of CFI1 Iraq which the grants were signed in Feb 2022, those who have been terminated and Legacy innovations which have had USAID support for a few years. When discussing year 1 for CFI1 that is May 2021 to April 2022, for CFI2 year one is mid-June 2022 to mid-June 2023 and for the CFI1 Iraq year 1 is May 2022 to April 2023.

More information on the portfolio is presented in 3.8.1 Portfolio analysis. In short, the innovations are spread across the regions in the following order: MENA 38, SSEA 32 and SCA 11; making a total of 81 innovations in July 2022. As is discussed below, most of the end users are in SSEA.

Purpose of the evaluation

The purpose of the Evaluation is primarily to inform WE4F management (at the level of RIH and the Secretariat), and the founding partners. This midterm report covers WE4F's work in the SSEA and MENA regions; Final Evaluation will also cover the SCA region.

In this evaluation stage the focus is on program design issues (strategy/ToC, structure, the M&E system), presenting and analyzing the portfolio, the promise of targets, and initial performance.

The Evaluation Team collected data to answer the evaluation questions through documentary review and directly at the levels of actors or stakeholders⁵ in the program:

1. Program and meta level: founding partners, WE4F executive, policy makers and regional organizations supporting the innovation
2. Administrative level: WE4F Secretariat, Regional Innovation Hubs (RIH), experts
3. Innovation level: Innovations and their service providers (incl. finance institutions)

⁵ A more detailed brief on the understanding of who are the targeted stakeholders is provided in chapter 7.

4. End user level: all customers using the innovation, incl. farmers, food processors.

This MTR, together with the final performance/ impact evaluation, provides an overall assessment of WE4F that not only makes transparent the challenges met and results achieved, but also contributes to content-related and systematic learning by answering questions of “how” and “why” the interventions of WE4F were successful or were met with challenges.

The evaluation questions

This section summarizes the main evaluation questions; a complete list of evaluation questions is presented in the SOW in Annex 1, and again in Annex 2 where the questions are linked to the indicators. For convenience, the relevant EQ and indicators are also presented at the beginning of each (sub)section in Chapter 3. As is demonstrated here, the findings are structured along the OECD-DAC evaluation criteria.

At end user level:

- **Relevance and coherence at innovation level (sections 3.1 and 3.2)** – The focus of this baseline and mid-term report is on the relevance and coherence of the program. The main questions EQa,b are therefore situated in the context, and explore end user demand, local ownership and addressing the needs of more vulnerable groups. In relation to Coherence the contribution to SDGs is explored (EQ1c).
- **Baseline for effectiveness (outcomes) at innovation level (section 3.3)** – The baseline for innovations’ effectiveness is explored with the main question EQ1h, and indicators on innovations’ progress on mobilizing investment and partnerships (KPI9, Gin20).
- **Baseline for impact at end user level (section 3.4)** – To establish the baseline for measuring impact at end user level, the main questions (EQ1e, 1f, 1g, 1i, 1l) on water- and energy saving, food production and related income increase, and EQ2: the attribution question.
- **Sustainability at various levels (section 3.5)** – On the subject of sustainability (EQ1l, 1m, 1n, 1o, 1p), the questions focus on:
 - o sustainability of innovations’ business: profit and job creation (KPI1, Gin10)
 - o environmental sustainability at innovation level: monitoring protection of water, biodiversity (KPI8)
 - o environmental sustainability at end user level, related to GHG emission (Gin6), and area improved (Gin45).

And at program level:

- **Relevance at program level (section 3.6)** – This is explored in interactions at the international and national level.
- **Effectiveness (outputs and outcomes) at program/RIH level (section 3.6)** – To establish the baseline for measuring outcomes at this level, the main questions (EQa,b,c and EQ1d,h) explore outputs of what the RIH delivered in terms of Technical Assistance (TA, incl. training on various subjects) and Investment Facilitation (IF).
- **Effectiveness (outcome) at program/meta and level (section 3.7)** – There are questions the questions about learning (EQa, EQm, EQn), external financing and other enabling environment work (Gin28).
- **Efficiency at program level (section 3.8)** – The question EQb is the most important here, at this MTR phase; it requires that the Evaluation Team carry out a portfolio analysis.

Collecting data for the evaluation questions will contribute to analyses that help to answer the overarching hypotheses I, II and III. These hypotheses, as questions, are presented as ‘evaluation questions’ and included in Annex 2.

2 METHODOLOGY AND APPROACH

The Evaluation Team used a mixed method approach which included the analysis of the programs quantitative data, surveys and qualitative data collected through KIIs conducted by the Evaluation Team and observations. A full description of the processes of data collection (conducting a data quality assessment of administrative data, the survey of innovations, qualitative data collection and surveys of end users) is set out in Annex 15 for reasons of economy.

Here the methodology is comprehensively set out with the following headings: the method of data collection, sampling, data analysis plan, administrative data validation process, data security, qualitative analysis, quantitative analysis, data quality assurance of M&E data, limitations of data from innovations' Annual Working Plan (AWP), limitations of the evaluation and reports on progress in data collection.

The evaluation matrix sets out the evaluation questions, the relevant indicators and the various sources of data and is presented in Annex 7. The scope of the MTR is also presented here in the detail of the questions which will be fully addressed, partially addressed either by lack of data or not fully addressed because of the stage of WE4F or not addressed at all as they are inappropriate to the MTR and apply to the final evaluation.

The full set of Evaluation Questions which apply to the entire evaluation are listed in Annex 2. In the MTR the continued relevance of WE4F and progress towards achieving its planned objectives is undertaken.

The evaluation presents a challenge with 66 questions to which are added the KPI and General Indicators which are also assessed and present a range of concrete targets. The evaluation questions are gathered under the OECD development criteria for which at the MTR stage; there are, however, limits in reporting in two dimensions. Firstly, the MTR covers the early stage of WE4F when not all activities matured and effectively measured and secondly, there are data gaps in administrative data, innovation surveys and, particularly, end user surveys which can only be closed over time.

Rather than excluding whole sets of questions as the WE4F has not yet matured (such as those gathered under Efficiency, Impact and Sustainability), it was decided to assess the evaluation questions and data to see what could and could not be answered. A full set of questions is presented in Annex 14 and presented according to the following criteria:

- a) Full: address fully and conclusively
- b) Limit stage: can only answer to a limited extent in the MTR as a longer period of the program is needed
- c) Limit data: we partially answer because there is limited data and
- d) Not Addressed: these questions are not addressed in the MTR but will be in the Final Evaluation.

This somewhat broader scope for the MTR including each of the OECD criteria is used because of the need to assess the preliminary results as the basis for the final evaluation. For instance, the preparation and foundations for sustainability need to be established in the early results, etc.

In the MTR all the OECD criteria are addressed at various levels. Not all Evaluation Questions or GINs are fully and finally assessed. Particular attention is given to Relevance, Coherence, Effectiveness (specific aspects), Efficiency (to some extent), Impact (to a limited extent, relating to end user responses) and Sustainability (with a focus on the short term i.e. viability of the program and the innovations) as well as foundational aspects such as end users reporting long term engagement in an innovation.

The assessment of the Evaluation Questions leads to the following: Relevance and Cohesion are reported in full. Effectiveness with 3 questions answered in full, 5 with data limitations, and 4 with limitations due to the stage); Efficiency with one question Not Answered, 4 with limitations due to

stage and 2 with limitations due to data); Impact with one question Not Answered, 4 with limitations due to data; and finally, Sustainability with one question answered in full, 8 with limitations due to the data, and 1 with limitations due to the stage.

Presented in this way it may appear that that the stage of development is not the deciding factor in answering or not answering a question; aspects of a question may be answered partially.

The instances of limits to data may appear like the system is lacking at this time, but a full and comprehensive data collection in administrative and in independent evaluation research is somewhat linked to the stage of development. Data systems improve and repeated surveys and interviews are needed to confirm or reject patterns of change, this has been an ongoing process for the project during the midterm evaluation.

Furthermore, because of the interrelationship between the many questions, it was found hard to disentangle the related paths leading to the intended result. For instance, in many fields Effectiveness is a step to Impact in a longer loop towards Sustainability.

This approach allows most Evaluation Questions to be addressed at this stage, for related observations and data analysed in full or partial answer, and to establish early findings and recommendations to allow revision and refocusing as an extension of WE4F is considered.

There are, challenges in assessing change over time. In the early stages of a program rigorous data collection often establishes the baseline for subsequent development over years rather than a measure of change. The baseline of the number of end users, for instance, was found to be set at zero; in this case change and growth is assessed against Year 1 Results by progress towards or failure to reach targets.

Overall, this approach leads to critical issues being identified to assess if WE4F is fit for purpose and for extension. Specifically, the MTR identifies achieved food production, expansion of end users and proven financial viability of innovations as three planks for progress and extension.

3 FINDINGS

This chapter presents findings in sections that follow the OECD criteria and presents the results for SSEA and MENA CFI1 grantees as the results for SCA, CFI1 Iraq and CFI2 are not yet available. The format of this section is to first discuss the data, both qualitative and quantitative, and then provide a summary of the findings and conclusions are the end. The recommendations follow in the corresponding section.

Section 3.1 addresses **relevance evaluation questions** with a focus on how the innovations respond to end users' needs, measured by the uptake (growing numbers of end users) and qualitative data on local ownership and end user feedback.

Section 3.2 discusses **coherence** at program level.

Section 3.3 presents the **effectiveness** focusing on program outcome level: the effectiveness of the hubs' delivery of TA (OC1), the effectiveness of delivery of WE4F funding, compared to innovations' co-funding and mobilization of external funding (OC2), and promoting an enabling environment (OC3).

Section 3.4 considers the program design and (in relation) a number of management issues related to **efficiency**, including the MEL system.

Section 3.5 looks at **impact-level results** (baseline and progress) in terms of the growth of end user numbers (IM1), the use of the innovations (IM2), food production while saving water and/or energy (IM3) and income (IM4).

Section 3.6 assesses the **sustainability** (EQ1l, EQ1m, EQ1n, EQ1o and EQ1p) at the program, innovation, and end user levels, presenting data from indicators KPI1 (profit), Gin10 (jobs), KPI8 (monitoring water & biodiversity), Gin6 (GHG emission), Gin45 (surface area of land better managed) and a discussion of the social, economic, and environmental effects along the innovation lifecycle.

Section 3.7 addresses the three overarching hypotheses (EQHI, HII, HIII).

The main data sources are the WE4F Administration's M&E system, the Dexis Innovation Survey, Dexis Key Informant Interviews (KII) with innovations, and the Dexis End user Survey. The Final Evaluation will include interviews with the Founding Partners and the WE4F Secretariat.

3.1 Relevance

Section 3.1 addresses **relevance evaluation questions**. At program level the questions on how well the program addresses needs of marginalized groups and women, and the need to assure environmental and socioeconomic sustainability (EQc and EQd). At innovation level, the questions on how well the innovations adapt their outputs to the requirements of SDG, and to the needs of more marginalized households (EQ1a and EQ1b).

3.1.1 Countries participating in the program

- **In total, there are 81 innovations across 26 countries.**

The number of countries participating in WE4F, and the number of country-innovations is an indicator of its relevance. Please refer to Annex 8 Table 31 for a complete list of country-innovations as well as a table detailing the number of innovations per country and the innovation focus.

As made evident in the summary below, WE4F is relevant throughout a broad reach of participating countries across the SSEA, MENA, and SCA regions. For example, there are 32 innovations across 9 SSEA countries, 38 innovations across 10 MENA countries, and 11 innovations across 7 SCA countries.

In terms of the innovation types, the data shows that the number of water, energy, and water and energy focused innovations is well spread over the different country-innovations (the latter is the

focus for half of the country-innovations). For example, of the innovations, approximately 27% are water, 23% are energy, and 50% are water and energy focused innovations.

EQc – Compatibility of interventions to impact on water, energy, and food security⁶

EQc finding: In this first stage finding of the evaluation, the participation of the different countries as well as the well spread balance of the innovation focus areas shows broad relevance. To date, the broad relevance of the WE4F Program is evidenced through its country participation which includes 9 countries in the SSEA region, 10 in the MENA region and 7 in the SCA region. In interviews with RIHs and innovations, the focus areas are regarded as highly relevant to these regions.

3.1.2 Local ownership

- **Most innovation companies are incorporated in participating countries.**

Local ownership is an important indicator of relevance to agencies involved in agriculture production. Local ownership in EQ1a is understood as being an innovation that is indigenous to a locality/country (not a foreign implant) and is a measure of relationship/relevance to country and government. To express this, the Evaluation Team investigated the relationship of the innovation company with the countries in which they work. Ownership is shown; whether the innovation works, or not, in the country in which it is incorporated.

In terms of where the innovations are incorporated, approximately 75 % of innovations work in the same country as incorporated, 11 percent do not work in the country they are incorporated in, and 17% there was no data available at the time of data collection and analysis. Additional details broken down by region in Table 45 in Annex 8.

A large majority of innovations work in the country in which they are incorporated; since these are participating countries in WE4F this indicates an immediate level of relevance to local institutions and end users. Those innovations which are not incorporated in a local country may also be in another participating country, examples being innovations incorporated in Egypt but functioning in Lebanon and elsewhere. During the Annual Convening innovations shared how their experience and knowledge on the ground created a demand for their innovations and allowed them to adapt to the needs of the end users, this was particular true for increasing numbers of women end users for some innovations in Egypt and India.

EQ1a – Demand and local ownership for the innovations⁷

EQ1a finding: Local ownership is evident in that most innovation companies are incorporated in participating countries; they may also operate in other adjoining countries in the region. This finding should also be cross-referenced to the impact findings.

EQ1a recommendation: The Program needs to strengthen technical assistance support in the legal and regulatory areas to address the barriers that women face both as innovations and as end users. This is being achieved with the innovations and financial services, but could also drive other stakeholders, e.g., government, to demonstrate that engaging more women and make them benefit, it requires them to be given equal freedoms and equal wages (on wages, this can be addressed in innovation companies).

3.1.3 End user feedback to innovations

- **There is evidence of 67% of innovations make products that are relevant to their end users and reliant on client feedback.**

Relevance is also indicated by innovations adapting products for the user of end users the innovation survey (conducted in two – SSEA & MENA – out of the three regions) asked 12 CFI1 innovations

⁶ **EQc** – To what extent were the interventions implemented at each WE4F RIH compatible in achieving impacts related to water efficiency, energy efficiency and use of renewable energies, or food security across the program?

⁷ **EQ1a** – Is there demand and local ownership for the WE4F innovations (individually and across all innovations)?

whether they provided different products/ innovations for farmers of different sizes; 67% responded yes, and all of them confirmed to have a mechanism for collecting client feedback. Examples of feedback that innovations collected from their clients, summary include:

- a need to make their interface with clients more use-friendly
- satisfaction with the seed selection and fertilizers available
- a need to receive additional support post-harvest in using post-processing units to add value
- coconut char-briquettes for chick-brooding are good and simple to use
- pay-per-use services are much more affordable and hassle-free.

Given the cross-sectional analysis, further details are included in the section on impact and effectiveness in this report.

EQ1b – Strategy to address marginalized groups’ needs related to water, energy, food security⁸

EQ1b findings: In terms of key needs of end users, there is evidence of 67% of innovations make products that are relevant to their end users and reliant on client feedback. Overall, the increasing numbers of end users are evidence that the innovations respond to key needs; with an increasing demand for most of the innovations, the innovations are found to be relevant to end users including marginalized groups (more on that in 3.5.1).

EQ1b recommendation: WE4F needs a promotion strategy to show how more women end users can succeed. These efforts may draw more women into production. Consideration should also be given to technology of which ergonomics are adapted to women (smaller in size), and technology benefits for women, e.g., biodigesters (a heavy investment that is often paid for by men) benefit women in terms of health and cooking-fuel time saving, but considering the time spent on charging the biodigester (needs a lot of water) women could also benefit from bio-slurry, for food crops.

Additional research into successes in raising participation of marginalized groups should be undertaken to identify innovations (in terms of costs, sizes, quantities) which have proven to be most successful in meeting the needs of these groups. Additional focus should be given to marginalized groups during future surveys.

3.2 Coherence at program level

Coherence in this MTR is related to whether the intervention is coherent with its own and broader strategic objectives. More specifically the MTR assesses both the internal workings of WE4F, such as the allocation of funds to sectors which reach towards strategic objectives and externally, such as the relationship between WE4F and other significant development initiatives nationally and internationally. In addition, of particular interest is the relationship between Hubs and innovations with other initiatives undertaken by donors, such as programs on microfinancing.

Internal coherence

- **There is internal cohesion between the key focus areas of innovations and the strategic objectives of WE4F.**

Firstly, internal coherence is assessed as the alignment of all parts of the program with its strategic objectives. This is assessed by the self-identification of innovations of their focus to assess their self-identification with the strategic objectives.

The Evaluation Team examined the internal coherence of the innovations with the strategic objectives of WE4F by way of using innovations’ keywords they used to capture the essential nature of their innovations. These words were then organised in three clusters (natural resources /

⁸ **EQ1b** – To what extent does WE4F’s innovation support strategy address key needs related to water efficiency, energy efficiency and use of renewable energies, or food security of marginalized groups (the poor, women, youth, ethnic minorities, rural communities)?

technology / socioeconomic), as shown in Table 3, where the comments were counted and presented by innovation focus.

Table 3: Innovations' key words describing the innovation (n=see note below)

Innovation focus	water	energy	water & energy	total
Natural resource/climate aspects: resource efficiency, solar, renewable, organic waste, biogas, bioslurry, saves water, organic fertilizer, climate smart, cleaner, weather, endemic seed	6	12	10	28
Technology aspects: innovation, linking technology, best practices, adaptable, easy to use, reliable, livestock breeding, AI, poultry brooding, hybrid seed, endemic seed, irrigation, pump	2	4	9	15
Socio-economic aspects: production increase, (labor, land) intensification, zero hunger, SDG market facilitation, pay-per-use, scale up, business model, value chain, competition, supply chain, finance, carbon-credit, fast, savings, farm management, digitalization, data driven, monitoring, effective, service delivery, decentralized, affordable, savings, smallholders, inclusive, empowerment, gender, LGBTQI, community-managed, cultural	14	18	19	51

Source: Dexis innovator survey (Clean version August 10 Survey Monkey Innovator Survey.xlsx)

Note: The numbers represent “mentions” in response to the question and not the number of innovations responding.

The most common key words (51) are found in the socioeconomic cluster followed by natural resource/climate aspects (28) and finally technology aspects (15). Technology key words are mentioned especially in the innovations with the combined water and energy focus. In relation to the other clusters there is fairly even spread of key words in natural resources and socio-economic aspects.

Another positive internal cohesion aspect of the Program is found in the frequent mention of the productive interrelationship between innovations learning from each other. This occurred during the bootcamps that the hubs hosted and during the annual convening. There was camaraderie among the innovations from each hub, and this extended to all the regions during the convening. The innovations are able to discuss common problems, and solutions and also network so materials and equipment can be sourced from other countries if a supply chain issue develop.

External coherence

- **There is still not concrete cohesion between the Hubs and innovations and other in-country donor programs.**

Secondly, the content of the self-description provided by the innovations can be related to aspects that are also covered in the SDG for food security, inclusion (smallholders, gender, LGTBQI, marginalized communities), sustainable land & natural resource management (saves water, resource efficiency, endemic seed) and climate mitigation and adaptation (solar, renewable). In addition, in KIIs both the RIH and innovations have mentioned their alignment to a particular SDG and to government programs to implement these international goals.

The SDG operate at a national and international level to direct resources to meet major challenges in agriculture, environment, climate change and income.

Despite the overall alignment with the SDG mention was also made of friction points or trade-offs between goals directly related to the innovation (and to WE4F) and broader SDG. The RIH respondents provided examples of these, naming various (negative) socioeconomic, environmental, biodiversity and climate change effects of the innovations:

1. RIH concerns about (solar) water pumps causing depletion of water resources, and “water may not be managed so well,” and “unintended water-related consequences are yet to be identified”. There was evidence that some innovation strategies do not address this, as it is assumed that “other schemes encourage micro irrigation.”

2. Mention was also made that goat breeding (in a semi-arid area, apparently beneficial for marginalised women farmers *who increase the goat herd*) depletes the community's water resources.
3. The control of negative environmental effects can be costly, e.g., alternatives to chemical pesticides can be a burden, especially for smallholder farmers, small organizations.

Finally, there may not be cohesion between the WE4F RIHs and other in-country donor programs. In interviews with Hubs this was mentioned positively in one instance, but this aspect has not yet been extensively examined.

EQ1c – Contributing towards SDG⁹

EQ1c finding: Overall there is internal cohesion between the key focus areas of innovations and the strategic objectives of WE4F. There is real interest expressed in interaction between innovations themselves within WE4F. These relationships started during bootcamps and the annual convening and will continue.

WE4F provides avenues to reach particular SDGs in relation to socioeconomic, environmental, biodiversity and lowering of emissions in agriculture and broadly towards eliminating poverty and hunger. There are, however, some contradictory aspects of SDG which may be 'off-site' i.e., elsewhere in the innovation lifecycle / food commodity value chain, affecting others than the end users including marginalised groups. This is discussed in more detail 3.6.5.

EQ1c recommendation: Since SDGs are integrated into country plans the RIHs could initiate discussions with policy makers and civil society to achieve mutual coordination and support for innovations. Attention should be given to SDG (SDG2: Zero Hunger, SDG1: No Poverty, SDG15: Life on Land, SDG5: Gender Equality, SDG10: Reduced Inequality, SDG13: Climate Action, SDG9: Industry, Innovation, and Infrastructure).

At a national and regional level, the Program should present sets of innovations which help advance particular SDG, to promote innovations to support government efforts to attain SDGs.

WE4F is giving particular attention to and developing tools to measure progress in relation to SDG15: Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. Interventions by the RIH could improve the enabling environment for innovations by showcasing the prioritization given in improving sustainable agriculture in all these dimensions.

3.3 Effectiveness: innovations' capacities

The effectiveness is related to the outcomes of the services provided by WE4F:

OC1: Capacities of innovators are improved

OC2: Mobilization of external funding for innovators is increased

OC3: Enabling environment for innovators and relevant stakeholders in targeted regions is improved

This section covers two new indicators (2021 Annual Report):

- The score(s) for the Quality of Service Survey (QoSS) in 3.3.1.
- The proportion of innovations reaching their own end user targets in 3.3.5¹⁰.

Subsection 3.3.1 is about the services provided, covering the QoSS results and -indicator which covers all services. Subsections 3.3.2, 3.3.3 and 3.3.4 provide specific information on Technical Assistance (TA), Investment Facilitation (IF) and Enabling Environment (EE, including financial support for end users, removing hurdles, sharing lessons). Lastly, in 3.3.5 the effect of these services on innovators' businesses: end user numbers and gross sales.

⁹ **EQ1c** – To what extent do WE4F innovations contribute towards or contradict SDG including those related to poverty, hunger, gender equality, affordable and clean energy, preservation of water resources or biodiversity, and climate change adaptation?

¹⁰ The WE4F *impact* indicator on end users (KPI2) is discussed in the impact chapter (3.5.1).

3.3.1 Quality of Service and effect of TA, IF and EE

- The services are generally very good, close to, or more often above the 80% mark.
- Improving the Enabling Environment services is most important: there is a need for it and needs adequate knowledge of the local context; it is recommended to mobilize and build capacity of apex organizations that could influence the enabling environment with the benefit of knowing the local context.
- Pre-award services could be streamlined and tailored, e.g., different entry systems for smaller and larger business.
- The disbursement of WE4F funds is generally on track.
- Innovations have been able to raise funds by co-funding and external investors.

The WE4F QoS Survey (QoSS) assessed services in 7 areas¹¹. The QoSS gives a large quantity of interesting qualitative and quantitative information. Key findings from the November 2022 QoSS:

- Generally, the various services provided by WE4F are much appreciated and found to be (very) relevant and useful; the WE4F hub staff is commended for their responsiveness and helpfulness, “professional”, “knowledgeable”, “communicative”, “they give their best” and “quick and ready”. Negative responses are mostly constructive and helpful.
- Generally, of all different services, TA and ‘networking’ were considered the most useful, in all regions; on usefulness of the services related to Investment Facilitation, Enabling Environment, gender, environment and M&E, there were relatively fewer mentions
- **Pre-award support:** all respondents found that the process positively impacted their organization’s administrative and financial systems; suggestions include improve documentation, e.g., tailoring/simplifying requirements for smaller innovations
- **Technical Assistance:** received very good (above 8) scores in all three regions (in SSEA, MENA and SCA resp. 8.1, 8.2 and 8.6); TA is mostly used for business planning, -financing and marketing; “TA helps with policies [...] used as long as the company operates”; for improvement it is suggested to (further) tailor TA to needs, and to (further) outsource TA
- **Investment Facilitation:** support is also receiving very good scores (resp. 8.6, 8.8 and 8.5) from innovations who received it (not all as yet); suggestions include, seek financing more tailored to innovations’ situations, and explore blended financing and fast-track investment
- **Enabling Environment:** support receives rather good scores (7.6, 7.6 and 7.4 respectively); many comments suggest a critical need, in all three regions, to address many barriers regarding registration and environmental compliance (“bureaucracy”), import and export, lack of finance, and political instability. Suggestions include, provide more specific references especially on **biomass challenges**: “local government lacking independence on waste management”, “regulations on compost (quality, trade) are challenging, or lacking”, “import of portable digesters is highly taxed”, and “WE4F keeps mis-classifying our project as a renewable energy (biogas) project yet we trade bio-slurry”.
- **Knowledge on marketing, BoP and gender,** on average, increased; more than 90% (all 3 hubs) indicate gender knowledge increase; most effective are 1-1 sessions, peer learning and expert sessions. “Grant funds allowed us to reach most of the remote farmers who are at the BOP”, and “the hub's persistence for our ESG policies to go beyond hiring ratios to better understand the role that women can have in supply of our feedstock”
- **Communication:** Most respondents received communications through the newsletter and participated in learning events on the subjects of gender, and environmental sustainability (incl. climate change adaptation, biodiversity). **The newsletter** is appreciated (more in SSEA than in MENA or SCA) although nearly a third of the respondents scores its helpfulness as neutral or less; many respondents like to see more success stories and information about funding opportunities. More personal communication is most valued: emails, 1-1 calls and

¹¹ QoSS analysis to answer EQn.xlsx

conferences (with peers). Webinars, workshops, annual meetings and bootcamps work well for learning on **gender** and **environmental sustainability**. Suggestion, include providing direct feedback on environmental sustainability issues, including climate change adaptation.

- **Monitoring & Evaluation:** readiness for data collection is good, but to an extent; it is “not easy”. Data use varies by region; mostly for decision making, sales and fundraising. The recommendations vary: tools to be improved and standardized *and* with the possibility to adapt or simplify tools (e.g. for BoP end users); data collection should be more efficient (or given more time), and automated (suggested several times).

For the new indicator counting the proportion of participants scoring high Quality of Service (assuming this is a score of 8/10 or higher), the results are as presented in Table 4.

Table 4: Proportion of participants scoring high Quality of Service (new indicator)

Region	TA (Technical Assistance)	Investment Facilitation (IF)	Enabling Environment (EE)	average score (not weighted)	n (total n = 166)
SSEA	19 (79%)	8 (89%)	15 (65%)	75%	
n	24	9	23		56
MENA	25 (76%)	9 (75%)	18 (55%)	67%	
n	33	12	33		78
SCA	11 (100%)	8 (80%)	7 (64%)	81%	
n	11	10	11		32
Average: (w = weighted)	85%	81%	60%		
Total n	68	31	67	72% (w)	166

Source: QoSS Nov. 2022

New indicator on QoSS: Quality of service score; target: 80% in the categories “very” a “extremely” positive/effective (a score of 8 or higher).

New indicator on QoSS finding: The average scoring follows a fairly similar pattern in all three hubs: near or above the 80% mark for TA and IF, and below 70% on the subject of EE.

EQb: EE, TA and IF differences in meeting innovations needs and scaling innovations¹²

EQb finding: Participant’s scores in the QoSS show generally high satisfaction with the TA and IF services understanding and responding to needs. There is a difference in EE services; this is no dissatisfaction but the marks for understanding needs are lower. This is in line with the interview data.

EQe: TA leading to immediate delivery as awardee expected, and long-term success (advice adopted, valued)¹³

Limited stage

3.3.2 Innovations’ assessment of learning events on TA, IF and EE (all 3 OC)

In 2021 WE4F delivered official 33 training events in the SSEA and MENA regions, which benefited 30 innovations. Most training is about business development, investment, marketing, and the Base of the Pyramid (BoP). The WE4F data do not indicate the number of participants¹⁴.

Table 5 presents survey data: 11 innovation respondents scored learning events organised by WE4F.

¹² **EQb:** How do WE4F interventions, including enabling environment work, TA and IF, differ in meeting the needs of WE4F-supported partners and the scaling of their innovations?

¹³ **EQe:** To what extent did each RIH provide WE4F innovators with TA 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)?

¹⁴ Source: WE4F MENA Hub TA Update_220220821.xlsx

Table 5: CFII innovations attending learning events: their participant score (%*)

Region	market development	business investment facilitation (IF)	financing for women	technology	input access	remove bureaucratic hurdles (EE)	av. score
SSEA (n=5)	3	5	2	2	0	1	13
	80%	62%	75%	50%	-	10%	62%
MENA (n=6)	6	4	3	4	3	3	23
	80%	83%	63%	55%	53%	37%	65%
Total (n=11)	9	9	5	6	3	4	36
	80%	71%	68%	53%	53%	30%	64%

*: calculation of score: very useful = 90%; fairly = 60%, little useful = 40%, not useful = 10%.

Source: Dexis innovation survey (Innovation survey 7 11 22.xlsx)

The table shows that most innovations score a high rate for the training quality; the best scores are for the business-related subjects: market development, investment facilitation, financing for women, the lowest for removing bureaucratic hurdles; this mirrors the results from the QoS.

The preference for business-related subjects is also arising from an interview with a MENA RIH respondent, indicating that “those that produce fast results (among other things)”, are much valued, referring to training on business optimization, marketing strategy and business planning¹⁵.

Participants note that much of the training is provided to middle management, whereas top management is facing the biggest barriers. Business-oriented training scores high because it directly “enables companies to be more structured and process oriented, optimizing operations.”

One respondent explains why training on removing bureaucratic hurdles is less effective: “we understand the local officers, bureaucracy, politics better and are capable of handling at our own level. Someone external may not help much in this.”¹⁶

One to one support to the innovations (e.g., organizational support, pre-award support, and help with permits and networking) is considered very useful.

Learning between innovations - In all three RIH respondents indicate that bootcamps in particular allow learning between innovations, helpful to discuss common problems, and network, e.g., connections to help with supply chain issues, and to identify future growth opportunities.

TA and gender (EQn) – RIH respondents report efforts to improve women’s access to innovations, *through innovations*, e.g., by i) selecting women-managed innovation companies; ii) selecting companies that know “how to integrate [...] marginalized groups”, iii) seeking alternative banking schemes; iv) (asking innovations to) address women’s education gaps in specific training, or v) find more gender sensitive partners for innovations. However, efforts to increase benefits for women are hampered by considered “cultural barriers”: women’s education being less than that of men, women’s opportunities to travel more limited, whereas the RIH feel they should focus on market-, capital- and technology barriers that women face¹⁷. These barriers were discussed in working sessions during the annual convening allowing innovations to share different approaches that have worked in India, Egypt, and Nepal to target women end users. One of approaches includes looking at the entire process of accessing the innovation from a women's perspective and trying to help and reduce barriers along the way.¹⁸

EQ1d – RIH help to overcome organizational capacity, EE barriers¹⁹

EQa – TA usefulness, effectiveness²⁰

¹⁵ Source: Workspace RIH KII we4f.docx EQg

¹⁶ Source: Workspace RIH KII we4f.docx EQ1d

¹⁷ Source: Workspace RIH KII we4f.docx (EQc, EQd, EQ1l, EQ1i)

¹⁸ Annual Convening Notes 2022

¹⁹ **EQ1d** – Does each RIH help its relevant innovators overcome organizational capacity? Were there additional barriers that were not addressed? By the RIH?

²⁰ **EQa** – To what extent did each WE4F RIH provide WE4F innovators with TA that innovators deemed useful? Did WE4F enable certain new expertise to be deployed that would otherwise likely not have been deployed/used by the individual partners?

EQ1d & EQa findings: The TA provided by RIH generally appears to help improve innovations' capacity on organizational/operational matters and innovations find it useful. Training on technology, input access and especially removal of bureaucratic hurdles is found less useful. Ad hoc (or 1-1 direct, tailored) support provided by the RIH is also very impactful and viewed as very valuable by the innovations.

EQn – Support to target BoP end users, gender²¹

EQn findings: Both SSEA and MENA RIH provided training on 'Base of the Pyramid.'

Recommendations on all services:

Pre-award: there is likely a trade-off between the choice of (often more established and larger) innovations that are capable to grow and contribute relatively much to WE4F targets, and companies that are smaller and – even as they grow – contribute little to WE4F targets; consider two different entry systems: tailored for smaller and larger companies

EE is important and needs to be improved. The Evaluation would like to know more about innovations' own activity in policy advocacy, e.g., through Business Member Organization, doing policy advocacy; for such organization, there is the advantage of understanding the local context; there may be scope to organize and lobby e.g., for better biomass-related regulation.

General (TA, IF, EE): To ensure adequate expertise on the local context, use more local TA especially for the work on removing hurdles (enabling environment), e.g., through Business Member Organizations (BMO), but also for more technical subjects

Gender: The Evaluation Team will look into training materials in the next phase, with a focus on how gender is mainstreamed in RIH country strategies/plans at all stages: conception (understanding the gender context), pre-award and service provision (TA, IF, EE), training methodology (adult learning, using women's expertise e.g. on dealing with barriers), and gender mainstreaming business plan, e.g. on job and pay equality, and tailoring innovations to needs of more marginalised groups including women (and the business case to do this).

Data from relevant (country-based) indexes could be used to highlight gender gaps, e.g., in business investment and financing, technology (design), input access (check the gender yield gap), bureaucracy, and "cultural barriers", to be used to update training materials.

EQn recommendations: The Evaluation Team will look into training materials in the next phase, focussing on how gender is mainstreamed in RIH country plans, in work on TA, IF and EE:

- introducing and understanding the gender context (e.g., by using data from relevant indexes for a country), highlighting gender gaps, e.g. in business investment, finance, technology, input access (check the gender yield gap), bureaucracy, and also "cultural barriers", to find solutions that address these, e.g., innovations can to some extent adapt training materials, location, timing and content to women
- training methodology (adult learning, using women's expertise e.g., on dealing with barriers).

3.3.3 WE4F disbursement and Innovations' capacities to mobilise funding (OC2)

A key strategy of the WE4F program funding is to generate (more) external funding, to perpetuate the scaling up of the innovations.

The main questions explored in this subsection are about WE4F grants to innovations, in relation to co-funding from innovations themselves, and the external funds that innovations have been able to

²¹ **EQn** – To what extent did each RIH provide WE4F innovators with support that improved their ability to more effectively target end users such as women and the poor by improving access to or the usefulness of innovations for these groups? To what extent did each WE4F RIH provide WE4F innovators with support to strengthen their organizational capacities with respect to gender (e.g., expanding the female workforce, female leadership within innovator companies)? What were the unintended effects of innovator support provided by RIHs on cross-cutting issues of gender and poverty?

mobilise. The most important indicator is KPI9 about external investment that is mobilized and in this section these amounts will be compared to WE4F funding, and innovations' own funding.

Disbursement - Table 6 presents the funds committed and disbursed for the different cohorts; it represents data that are yet to be completed.

Table 6: Funds committed and disbursed (USD) per cohort

Cohort	WE4F committed amount for all 3 years) (\$)	disbursed (as of 8/30/22) (\$)	% disbursed
CFI1* (n=23)	4,344,200	2,271,700	52
CFI2** (n=12)	1,855,000	516,000	28
Iraq CFI1*** (n=8)	860,000	344,000	40
COVID-19 grant	25,000	12,093	48
Total	7,084,200	3,143,793	

Source : budget tracker (received October 2022)

*: GA were signed early May 2021, thus the 1st year for CFI1 GA ranges from **May-21 to Apr-22**

: GA were signed mid-Jun 2022, thus the 1st year for CFI2 GA ranges from **mid-Jun 22 to mid-Jun 23

***: CFI Iraq was signed end Feb 2022 (with one early Apr 22) and the GA ranges from **Mar 2022 to April 2023**

The disbursements are more or less on track, and in so far as there are delays (in SSEA) these can be explained as mostly the result of the COVID-19 pandemic. Please note that more details are provided in Annex 8, including a list of the funds awarded and disbursed for the CFI1 in Table 33, as well as more detailed data on disbursement in Table 37.

External funding - A critical factor in the program effectiveness is the additional funding that can be attracted, which will allow greater effectiveness of the resources put in by WE4F. Table 7 presents the value of external investment mobilized by innovations themselves, by region.

Table 7: External investment mobilized in year 1 (USD), by source (KPI9)

Region	external investment					
	cash/public	cash/private	in-kind/public	in-kind/private	unknown	total external
SSEA (n=8)	0	3,076,485	0	0	755,552	3,832,037
MENA (n=11)	71,217	4,650,924	23,950	0	0	4,746,091
Total (n=19)	71,217	7,727,409	23,950	0	755,552	8,578,128
%	0.8%	90.1%	0.3%	0	8.8%	100%

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

In about a year, 19 innovations of the 81 CFI1 innovations had mobilised 8.6 million USD external investment. The data are too limited to draw reliable further findings. A tentative prognosis with some assumptions could be:

1. the 19 innovations raise another 0.9 million until LOP, thus 9.5 million USD in total, or 0.5 million USD/innovation.
2. the remaining 62 innovations (given some reporting bias²²) raise half as much, thus 250,000 USD/innovation (LOP). Innovations' own targets for external investment - In SSEA innovations reported on the external investments for the innovation: 4 of 11 of those reporting had met their own year 1 target. In MENA, 4 of these 7 innovations reportedly met their year 1 target.

EQp – Cross-cutting issues impact increasing the interest, and finance from external investors²³

Not yet assessed (limited stage).

²² About bias: taking Y1 results (vs Y1 targets), on food production 10/18 pass their target, on end users 18/34 pass their end user target. So just over half of the innovations pass their y1 target. Which ones provide data on funds raised? Comparing with the food results: all 10 passing food targets provide data on external funds raised; 8 not passing also do.

Comparing with end user results: 8 passing end user targets provide data on external funds raised; 4 not passing also do. This would suggest some bias. This calculation is just a tentative check and cannot be used further.

²³ **EQp:** To what extent did the strengthening of innovators' impact on cross-cutting issues including gender, poverty, and environmental sustainability/biodiversity contribute to increased access to external financing or interest from external investors?

EQ1p – Public/social and -/private engagement balance? Private funds help WE4F goals?²⁴

EQ1p finding: The public sector is engaging very little when it comes to (external) funding: less than 1 %. As all innovations are private companies, the public sector is not itself among innovations.

KPI9 – Investment from external sources²⁵

Limited data (data gaps are too many to conclude about reaching the 34 million USD LOP target)

KPI9 finding: 19 out of 81 innovations reported on having mobilized external investment, the 19 innovations raised 8.6 million USD.

Table 8 shows the WE4F grants compared to innovations' co-funding (their own funds).

Table 8: WE4F CFI1 grants and innovations' co-funding (Gin33)

Region	WE4F grant disbursed (\$)	% WE4F committed funds	innovation co-funding (\$)	% innovations' own co funding
SSEA (n=9)	911,700	40%	1,229,715	35%
MENA (n=14)	1,360,000	60%	2,240,028	65%
Total	2,271,700	100%	3,469,743	100%

Source: AWP for MENA CFI1, Budget Tracker (received October 2020) WE4F Admin data (MENA, SCA SSEA compiled data.xlsx) and the information from the Annual Report

For the 2.3 million USD disbursed by WE4F, an additional 3.5 million USD was co-funded by innovations themselves, that amounts to 153% of WE4F's support. These figures are from a limited number of innovations, but this proportion (above 100%) suggests that innovations do match the funds that WE4F provides.

Gin33 – Share of co-funding (%) provided by innovations themselves to match WE4F grant.

Gin33 finding: Innovations provide 153% of the funds disbursed by WE4F so far (program disbursement is about halfway of the funds committed).

As data in the above two tables are not from the same cohort, there cannot be further findings at this stage on the relation between the three: WE4F funding, innovations' co-funding, and external investment.

Grant funds disbursed by innovation type – In terms of funding, the three most important innovation types are Energy – production & infrastructure, Energy – farm inputs, and Digital solutions; Water – irrigation is a good fourth, and Energy – agricultural processing is fifth. One may try to find differences between innovation types in terms of numbers of end user household members they reach with each dollar of investment: in SSEA, the average Energy- farm input type uses 27.9 USD/end user household member, in MENA it is just 5.8 USD/household member. The inverse applies for the Water – irrigation type: in SSEA the cost is 2.2 USD/household member and – unsurprisingly in a region that is mostly semiarid, and with larger farm areas per household member – in MENA it is 87.4 USD/household member. Given the very different context and different innovations, not too much can be found on this (details on these data are found in Annex 8, Table 37 on CFI grants disbursed).

Gin40 – Number of contacts of potential investors provided to innovations by WE4F

Limited stage

Gin41 – Share of innovations that made use of the financial guarantee instruments

Limited data

Gin40 & Gin41 findings: From the innovation survey it is clear that many contacts were made with investors, and a beginning is made with data collection to link this to funding mobilized. Only a few

²⁴ **EQ1p** – What is the balance between public/social engagement and private/public engagement? To what extent have private funds been generated that contribute to WE4F developmental objectives during and following WE4F awards.

²⁵ **KPI9** – Value of investment (USD) by investment type* that WE4F innovators have mobilized from external sources; baseline: 0 USD, WE4F LOP target: \$34,000,000.

*: types: i) public/cash, ii) public/in-kind; iii) private/cash, iv) private/in-kind; v) unknown

innovations used a financial guarantee mechanism, but most innovations appreciate WE4F investment facilitation activities, and some already note a positive effect.

Using the WE4F M&E information it was determined that 91 partnerships have been created (57 in SSEA and 34 in MENA). This is an early stage in partnering. Most interview respondents discussed how introductions have been made but these had not yet resulted in partnerships, e.g.: “They have connected us with some organization, and we have submitted proposals but no success so far.” “They are open to help but no successful connection so far.” That notwithstanding, all 8 respondents found the help on partnerships useful: “knowledge increased”, “an opportunity to understand and develop linkages with these partners” and “helped to develop financial and procurement policy guidelines, and bottom-up pyramid analysis for market access”.

Gin20 – Number of external partnerships formed by innovations

Limited data

Gin 20 finding: Partnering appears at an early stage, but progress is being made, and 91 partnerships have been created.

EQ1h: PPP meeting their energy or water efficiency targets²⁶

Limited data

EQ1h finding: From the KIIs and the innovation survey there is evidence that innovations know about the PPP approach, but they have yet to build this into their partnering and financial strategy.

EQf: IF leading to additional funding, new IF and partnerships²⁷

Limited stage

3.3.4 Enabling environment (OC3)

- **More work is needed to help remove barriers for access for women and to increase access to financial support to end users.**

Improving the enabling environment (EE) includes inclusion of marginalised groups and end user financing (EQd, Gin28, EQl), and sharing of lessons (KPI10).

The enabling environment at the inception of WE4F, the establishment of the RIHs and for some period beyond has been strongly affected by COVID-19 related disruptions. This was described in the introduction, but this disruption was not explored by innovations and end users, possibly to avoid a return to the trauma of the pandemic. Despite this, reports on India and other countries of SSEA report severe illness and many deaths in rural communities, all of which would impact disproportionately on the more marginalised groups; it was noted that people from these groups would have fewer financial resources to buy innovations.

EQd: EE work impact on marginalized groups’ water & energy efficiency, renewables, food security²⁸

Limit data

EQd findings: Both RIHs focus the enabling environment work on financial services. On the subject of financial services, some ideas they have (when applied) will or are likely enable women to benefit more from the innovations. However, the results in the MENA region show that much more needs to be done to remove barriers for women.

EQd recommendations: Several recommendations are already made in section 3.3.1 with regard to understanding the gender context and adapt any training to this. The same would apply to other

²⁶ **EQ1h:** To what extent have the established partnerships with companies (in the form of PPPs) been able to meet their energy or water efficiency targets? Can the PPP approach be deemed successful overall in contributing to WE4F program-level goals?

²⁷ **EQf:** To what extent did each RIH provide WE4F innovators with IF that led to additional funding, new financial forecasting capabilities? To what extent did each WE4F RIH provide WE4F innovators with IF that innovator deemed useful? Did WE4F enable certain new IF and partnerships to be deployed that would otherwise likely not have been deployed/used by the individual partners?

²⁸ **EQd:** To what extent was the enabling environment work carried out by WE4F compatible or not with the intended positive impacts on marginalized groups related to water efficiency, energy efficiency and use of renewable energies, or food security?

activities (beyond training); understanding the gender context should be integrated at the conception of all activities.

Other enabling environment results - SSEA and MENA RIH respondents list different challenges in the enabling environment. In SSEA the first challenge is to hire middle-management people and then having to train them. In MENA it is “tricky business climate, limited rule of law, limited trust in the market [...] risky.”²⁹

Innovations themselves raised similar and more issues of access to finance or hard currency, currency fluctuations, dependency on imported components, high prices of raw materials, public regulations and legislation and unstable policy environment, fast changes in taxing, and finding and retaining talented staff.³⁰

EQm: EE support, useful, effect on EE around innovations? New networks?³¹

Limited stage, limited data

EQm finding: Innovation survey feedback suggests that some initiatives in the environment were found helpful e.g., where donors step in to raise the issue of bureaucratic hurdles. Also see 3.3.4.

Financial support for end users - In the 3 SSEA innovations where end user funding was received, 2,910 end users (only poorer end users, in income quintiles 1 and 2), had access to end user financing, a small fraction (1.4%) of end users in these income quintiles. Details are presented in Annex 8, Table 43).

No respondents in the end user survey in SSEA (n=143) could confirm they benefit from end user financing for the innovation (93% said no, 10 did not respond, nobody said yes). Interestingly, whereas some respondents would have liked the innovation to be cheaper, many more respondents suggested that the design be improved³². This was not discussed in detail in the survey but during the annual convening innovations shared how they have adapted designs to different clients. And in some cases, the farmers have adapted the innovations to their need. Such as the sensor to measure the moisture content of the soil and help the farmer determine if watering/irrigation is needed. The small-scale farmers use the innovation as is and the larger scale farmers can adapt the innovation with additional equipment to their needs. This is an example of how the end user has adapted the design for their needs and could be something other innovations could help facilitate.

Gin28 – Number of end user farmers* (f,m) by -household (hh) income quintiles using financing mechanisms**³³

Limited data

Gin28 finding: The number of poorer end users accessing end user financing is at this stage still very low. Financial support may be built into pricing or credit, but the low-level direct end user financing is a weakness in WE4F.

EQI: End user financing improved innovation access, uptake? Contributed to BoP income?³⁴

Limited stage, limited data

So far, few end users have benefited from end user finance, therefore their recommendations may turn to what is visible, thus the comments on design quality come first.

²⁹ Source: Workspace RIH KII we4f.docx

³⁰ Source: Workspace INNOVATION KII we4f.docx

³¹ **EQm:** To what extent did each RIH provide innovators with support that improved the enabling environment around WE4F innovations? To what extent did each WE4F RIH provide innovators enabling environment to support that innovators deemed useful? Did WE4F enable certain new networks to be created that would otherwise likely not have been deployed/used by the individual partners?

³² Source: Tables from SSEA end user data. Docs (generated from Monkey Survey for end users)

³³ the financing mechanisms adapted or created through WE4F engagement; * NB: the no. of end user farmers is *multiplied by* av. hh size/country; baseline: 0; target: t.b.d.; **: quintiles 1 and 2

³⁴ **EQI:** To what extent did each RIH provide WE4F innovation end users with end user financing that i) improved access to and uptake of WE4F-supported innovations? ii) contributed to local poverty alleviation and/or increases in income, especially for women and the rural poor?

Sharing lessons

KPI10 – Number of strategies, *standards/regulations*, guidelines, or projects of international, regional, or local organizations adopting and disseminating lessons learned from WE4F publications, events, or presentations

*Limited stage*³⁵

3.3.5 Innovations' business results: end user numbers, gross sales

- **WE4F expects that 40% of the innovations will meet their end user targets. Over 50% of the innovations have met their year 1 target.**
- **Whereas 37% of innovations reach their gross sales target, the WE4F LOP target is unlikely to be reached if current gross sales are the basis for it (and assuming sales double in years 2 and 3). But due to COVID-19 the year 1 results may be tempered, and higher sales may be possible.**

The effect of all WE4F services together is to improve innovations' capacities, which in turn should translate into business growth. This section covers the innovations' own targets on end users and gross sales.

Innovations' end user numbers (new indicator on innovations' end user numbers)

Aside from impact on end users captured in 3.5.1 (with KPI2 on end users), this section looks into the new indicator on innovations' own end user targets.

Table 9 shows the sums of innovations' end user targets from the AWP for the LOP, broken down per project year.

Table 9: Innovations' annual targets numbers of end user household members, all innovations (n=81)

	LOP*	year 1 targets*	year 2 targets*	year 3 targets*
Total	4,714,263	1,557,168	2,486,424	1,336,681

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx) AWP from innovators

*: LOP target is the sum of each year. In this table it is lower than the sum of three year-targets, because year 2 and year 3 targets were adjusted (upwards or downwards) by the Innovations themselves. Based on year 1 performance. These sums are from innovations' Annual Work Plans and presume that these are additional end users (so the baseline is 0).

The aggregated total of innovations' end user targets at LOP, over 4.7 million, is much higher than WE4F's target at LOP, which is 2.5 million end users (that is KPI2, in 3.5.1)

Growth models - Innovation interviews show that the innovations grasp of the potential for growth of the end user numbers. For example: "4 billion people have no access to clean cooking"; "large numbers of poor, women, landless climate-refugees reclaim barren land in riverbeds"; "a lot of room for improvement that would propel to more growth."; some work we do is adopted by state governments, impacting farmers across the country ('millions rather than thousands'). These statements confirm innovations are aware of the immense challenges of water supply and food production in developing regions.

We start by examining the yearly end user targets as obtained from the innovations AWP; Figure 2 shows the underlying models of growth targets by region, and Figure 3 shows the cumulative end user target growth, from year 1 to year 3, by region.

³⁵ Source: Workspace RIH KII we4f.docx

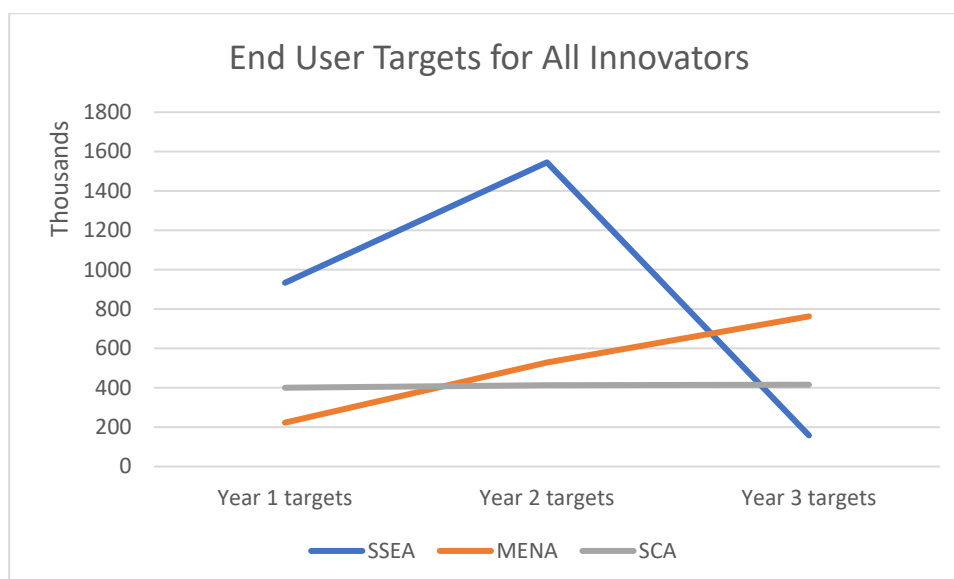


Figure 2: End user targets for all innovations

SSEA innovations plan an initial rapid increase in end users towards year 2, followed by a sharply reduction, MENA innovations plan a steady rise, and SCA project a flat rate: the for the next 3 years.

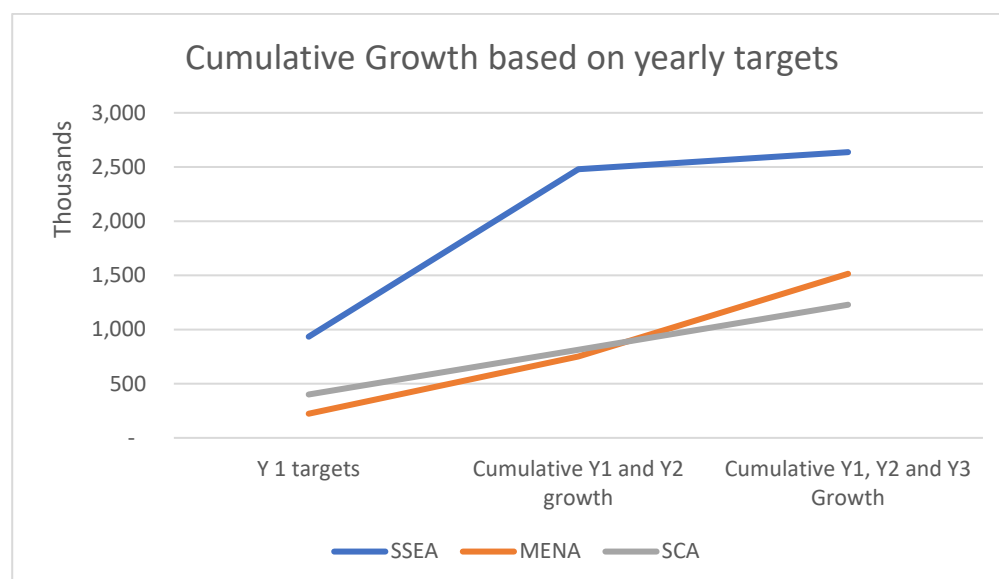


Figure 3: Cumulative Growth based on yearly targets

SSEA has uneven levels of targets over the years and then MENA and SCA have flat or moderate percentage increases over each year: lower numbers, but nonetheless sustained. There can be various reasons for these differences. SSEA innovations may see fewer barriers to initial growth picking low-hanging fruit, and more challenges to consolidate growth (companies' capacities are limited, and having many end users would require customer service, evaluation, all usurping capacity). And MENA and SCA innovations may consider slow growth a safer option, e.g., considering (more) challenges in the business environment. This is up for debate and could be answered with additional information from the innovations and hubs.

From innovations' end user data (in the Annex, Table 35) it is found that the WE4F program well exceeded this target of 40% of innovations: in SSEA 10 out of 14 innovations, and in MENA 10 out of 16 innovations reached within 80% of their own year 1 end user targets, that makes 67%.

This will contribute to WE4F overall end user targets (KPI2, in 3.5.1), however, the overall numbers, with some outliers, can give a distorted view. Therefore Table 10 compares CFI1 innovations in ranges related to the approaching or passing of their year 1 target. The innovations are grouped

according to performance in four segments (Missed Target by 51-100%, Missed Target by 0-50%, Surpassed Target by 0-100% and Surpassed Target by over 100%).

Table 10: Innovations' year 1 end user targets and results, by region (CFII, n=27)

Segment	SSEA	MENA	average result vs target (%) SSEA	average result vs target (%) MENA	% of innovations in this segment SSEA	% of innovations in this segment MENA
Missed target by 51-100%	3	4	-68%	-76%	25%	27%
Missed target by >0-50%	2	5	-21%	-17%	17%	33%
Surpassed target by 0-100%	6	1	+41%	+4%	50%	7%
Surpassed target by >100%	1	5	+604%	+169%*	8%	33%
TOTAL	12	15			100%	100%

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx) and Innovators AWP

Note: * An outlier of achievement of tens of thousands (in SSEA) was removed in calculating the average.

The table shows a wide range of performance reaching end user targets. On the low end, in both regions there are about a quarter of the innovations that are really far below their targets. About half (14/27) are approaching (above 50%) or passing their targets (up to +100%). On the high end the outliers: these 6 innovations provide the lion's share of end users.

New indicator: innovations' end user targets: proportion of innovations reaching their end user targets³⁶

New indicator finding: Overall (including the outlier not in the table), half of the innovations meet or surpass their target and that is more than the expected 40% (new indicator).

New indicator recommendation: Reflection with innovations on end user growth projection and targets.

Innovations' gross sales

Table 11 shows innovations' gross sales targets and results. For more details see Annex 8 (Table 32).

Table 11: Innovation gross sales (USD), by region (Gin4), compared to innovations' own year 1 targets

Region	innovations' LOP target (\$)	innovations' year 1 target (\$)	year 1 result (\$)	result % of target	no. of innovations reaching year 1 target	% of innovations reaching the target
SSEA (n=12)	24,490,893	8,559,139	5,670,840	66%	3	25%
MENA (n=15)	38,723,522	7,505,755	9,830,742	131%	7	47%
Total (n=27)	62,214,415	16,064,894	15,501,582	96%	10	37%

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

These data show that 96% of the year 1 target for gross sales is reached; this is due to some innovations being highly successful, exceeding their targets by a large margin, thus considerably lifting the average. Only 37% of the innovations reached or exceeded their target; this could be due to COVID-19 and other external factors; in KII, innovations noted floods, inflation, and other factors.

Gin4 – Innovations' gross sales from marketing WE4F supported innovations³⁷

Limited data

Gin4 finding: The gross sales year 1 result is as yet incomplete; also, sales may have been reduced due to COVID-19 and not provide a basis for reliable projection. Based on available data, it is possible that the LOP target can be met.

Gin4 recommendations, current phase: More reflection on end user growth models could be useful, especially for new innovations, to opt for a relevant growth model and realistic targets.

³⁶ From WE4F annual report 2022. Targets: i) 40% reach within 80% of their own targets; ii) 10% of innovations reach >100,000 customers/end users*. * NB: this second part of the indicator will be assessed for the final report.

³⁷ Baseline \$0, RIH LOP targets: SSEA: -; MEA: -; SCA: \$2,250,000. Program LOP target: \$75,000,000.

NB: RIH data are insufficient to revise the LOP targets (source: L. McMahan, USAID).

Gin4 recommendations for extension phase: More reflection on end user growth models could be useful, especially for new innovations, to opt for a relevant growth model and realistic targets.

EQ1o – Financial and social sustainability of the organizations supporting the innovation?³⁸

Limited data

EQ1o finding: Most of the innovations appear to be for-profit companies dependent on sales of innovations, sharing of infrastructure, etc., to ensure profitability. There seem to be few alternative sources of support or finance at this stage, apart from the (successful) mobilization of financial support with the help of WE4F.

3.4 Efficiency at program and innovation level

- **WE4F is efficient as a program in achieving the greatest impact in the deployment of relatively limited resources available and in terms of the costs of fund management in comparison with other Challenge Funds.**
- **Funding partners have added efficiency by assisting on specific issues of enabling environment.**
- **WE4F has shown particularly efficiency in assisting innovations to raise external funds multiple times that of the WE4F grant; on this it compares favorably with other programs.**
- **The RIH are reported by innovations to be efficient in streamlining services and tailoring support.**
- **The MEL system produces an impressive amount of quantitative and qualitative data which provides an overview of the whole leading to greater efficiencies; it can improve indicator definitions (incl. targets) and streamlining data collection.**

WE4F program design

EQj: To what extent was each RIH efficiently set up, organized, and managed?

Limited data

Notwithstanding recommendations on streamlining the pre-award process for innovators, and the feedback on indicators (definitions) and data quality, the overall impression of the team is that the RIH are set up and organized rather efficiently, given the volume of outputs they produce managing the award process and providing services.

EQ1j: Innovations using WE4F resources efficiently, to max. impact on marginalized groups³⁹

Limited data

It cannot be assumed that the innovations have an intention to maximize impact on marginalized groups. Where innovations see possibilities to include such groups among their clients, they are interested to take measures to do so, as shown in their feedback on BoP and gender learning events. But USAID and WE4F work from the assumption that the innovations follow their business approach and prioritize increasing end user numbers (targeting BoP or not) as well as profit; not all innovations disaggregate client needs or client feed-back. However, most end users hail from smaller income quintiles, where a disproportionate number of more marginalized end users is found.

EQh: WE4F results balance with efforts and resources (at all levels)⁴⁰

Limited stage

³⁸ **EQ1o** – Were WE4F-supported projects likely to be (become) financially and socially sustainable by the organizations supporting the innovation?

³⁹ **EQ1j:** To what extent were resources and support provided by WE4F used efficiently by innovators and other WE4F-supported partners to maximize positive impacts on marginalized groups (through income, employment, water/environmental, energy/environmental impacts)?

⁴⁰ **EQh:** To what extent were the WE4F results to date in balance with the level of effort and resources (funds, human resources including by the FPs, RIHs, and Secretariat)?

EQi: Innovations' effort and resources against the added value WE4F brings⁴¹

Limited stage

In relation to the internal measures of efficiency, innovation progress is measured by standard and program-specific indicators which are assessed against their output milestones. The proportionally increased costs associated with more intense fund management, TA and capacity building inputs are compensated by the active capture of learning.

WE4F is also found to constrain costs through established networks of local consultants. The portfolio approach allows diversity in method and subject and encourages out-performance which compensates for modest or failing results in innovations which may have other values. WE4F anticipates that innovations can raise external funds many times larger than the initial grant; this is confirmed by initial findings; from limited data available (presented in 3.3.2, re. Gin33), it appears that innovations' co-funding is in good proportion to (153% of) what WE4F has disbursed so far.

EQi finding: From limited data available, it appears that innovations' co-funding is in good proportion to what WE4F has disbursed so far. On internal Efficiency, WE4F may compare favorably with other programs, because of the co-funding raised.

EQk: Comparing administrative costs with similar challenge funds⁴²

Limited data (see also data in Annex 16)

This question is assessed by an external comparative approach. Two studies provide evidence on the comparative costs of challenge funds: the analysis undertaken in the evaluation of SWFF and the evaluation of Sida's Challenge Funds (from both, the relevant tables are presented in Annex 16)⁴³.

In Table 81 (SWFF) the comparative fund management costs show a significant spread, from 5% to 57% of the total grant. SWFF was found to sit in the middle with 26%. Fund management costs were, however, made up of several elements including M&E and technical assistance of various kinds. SWFF provided an intensive work program and high levels of support to innovations.

The IPE Triple Line study of Sida's challenge funds takes the comparative costs of fund management further; challenge funds may work through achieving economies of scale such as by providing similar support to a wide range of groups. The study makes an extensive comparative qualitative analysis of fund management and concludes from an analysis of Sida's 10 Challenge Funds that the more intensively managed funds, with a more "hands-on approach" had a greater degree of success in ensuring sustainable development outcomes than the "lighter touch funds". In addition, those Challenge Funds which enlisted wider stakeholder support were more likely to deliver sustainable impact.

Such comparative analysis leads to the finding that the proportion of fund management costs needs to be related to the activities of management and to outcomes. The WE4F model has an active management style with high quality monitoring and evaluation, careful planning and setting of targets, and on-going communications and interaction including technical assistance. This is a high-intensity management model which can lead to mutual learning between all participants and a high level of efficiency. WE4F Technical assistance tends to put the emphasis on a tailored assistance which is focused on concrete needs.

To return to the question of costs: analysis of Sida's Grand Challenge Funds (Table 82) finds the costs of fund management range between 22 and 50% of total budget, so with that, the SWFF 26% is

⁴¹ **EQi:** To what extent is the level of effort and resources spent by applicants/innovators in balance with the added value WE4F brings?

⁴² **EQk:** To what extent are the administrative costs for managing WE4F above, below, or on par with the cost of similar Challenge funds? (Special Consideration should be made for funds that provide TA to their innovators.)

⁴³ Evaluation of Sida's Global Challenge Funds. <https://cdn.sida.se/publications/files/sida62181en-evaluation-of-sidas-global-challenge-funds.pdf> Annex K: Analysis of fund management costs

in the lower range. At this stage, expenditure figures from WE4F are not yet compiled to position WE4F along this spectrum but it is likely to be in a similar position, Anecdotal evidence on co-funding, an important measure of efficiency, in which WE4F is compared with an NGO program finds that WE4F asks 5:1 external funds vs grant, whereas the NGO only asks 1:1. The expectation is that the various thrusts towards efficiency from a more intensively managed fund will have a greater degree of success in ensuring targeted development outcomes.

EQk finding: SWFF is found to have a highly intensive mode of management. Its administration and fund management costs are generally higher as a function of the total value of support to awardees than other challenge funds, but such comparisons need to be considered with care. The significant level of support provided to awardees and the impacts need to be considered. Support activities are well regarded by innovators as providing valuable assistance.

EQk recommendation: Sida, USAID and other funders should consider the use of a framework for cross-comparison, to enable a more rigorous assessment of the efficiency and effectiveness of different models of intervention. The Evaluation will make a proposal to that extent.

EQq: Investment risk management⁴⁴

Limited data

EQr: WE4F ensuring that partners can sustain medium to long-term impact⁴⁵

Limited stage, limited data, but assessed in EQIg.

Innovations' feedback - Responding to a question on hampering factors in the enabling environment, some innovations (n=2) used the question to provide feedback on the WE4F program: "low level of flexibility", "reporting demand", lacking "tools and expertise" and "grant funding period too short"⁴⁶.

EQ3: Differences between project plans and delivery⁴⁷

Limited stage

EQ3 finding: Considering that the planning and delivery may be expressed in end user numbers and gross sales, this question is largely addressed in 3.2.

Findings on program design: WE4F is efficient on the basis of the following measures; firstly, as a program it is efficient in achieving the greatest impact in the deployment of relatively limited resources available and secondly in terms of the costs of fund management in comparison with other Challenge Funds.

The design and strategy are based on the design proven to be efficient in the previous SWFF and PAEGC programs, accompanied by rigorous monitoring and on the achievement of results with economical means by continuous interaction between the RIH and innovations. The WE4F model has evolved from these prior programs with intensive risk and performance management to achieve greater efficiency.

The overall efficiency of WE4F depends on the quality of its management of time, resources, skills, and budgets necessary to accomplish all these interrelated tasks. At its core, WE4F anticipates high efficiency with modest targeted funding and advanced practices in learning, reporting, and planning leading to elevated (but mutually agreed and carefully planned) results. This devolves more

⁴⁴ **EQq:** How effectively have investment risks been managed by the program? (Number of failed projects, timeliness of reaction on problems observed etc.)

⁴⁵ **EQr:** To what extent has the WE4F program ensured that impacts can be sustained in the medium to long-term by the partners themselves?

⁴⁶ Source: Workspace INNOVATION KII we4f.docx

⁴⁷ **EQ3:** To what extent are there differences between the planned WE4F-supported projects and what was actually delivered in year 1 and then years 2-4 of the projects?

responsibility to local actors which involves scheduling teams to identify the fastest, cheapest, or most suitable approach.

The portfolio approach: The portfolio of a large number of diverse innovations is a key feature of WE4F which makes it distinct from conventional or “traditional” programs. WE4F is not unique in funding a large number of implementing partners, it does, however, fund considerably more innovations than others and manage communications and support more closely.

This “managed portfolio” approach is based on diversification which involves investing in dissimilar innovations which have different kinds of financial and capability assets in water, energy and agriculture which are combined in anticipation of maximizing return for many complex risks. Operations are also spread through decentralization at various levels: from the centralized Secretariat, to Hubs, and ultimately to the innovations. Overall, this could prove to be more efficient in maximizing returns from relatively modest resources.

Conclusions on portfolio approach: At this stage the overall efficiency of WE4F can be assessed on the basis of proven design, rigorous monitoring and on the achievement of results with economical means. The WE4F model has evolved from prior programs with intensive risk and performance management to achieve greater efficiency. Innovation progress is measured by standard and program-specific indicators which are assessed against their output milestones. The proportionally increased costs associated with more intense fund management, technical assistance and capacity building inputs are compensated by the active capture of learning. Such learning is absorbed by the RIH and passed on to all innovations.

WE4F constrains costs through established networks of local consultants. The portfolio approach allows diversity in method and subject and encourages out-performance which compensates for modest or failing results in innovations which are not performing well but may have other values.

WE4F anticipates that innovations can raise external funds many times larger than the initial grant; this is confirmed by initial findings. This may compare favorably with most other programs.

The overall efficiency of WE4F depends on the quality of its management of time, resources, skills, and budgets necessary to accomplish all these interrelated tasks. At its core, WE4F anticipates high efficiency with modest targeted funding and advanced practices in learning, reporting, and planning leading to elevated (but mutually agreed and carefully planned) results. This devolves more responsibility to local actors which involves scheduling teams to identify the fastest, cheapest, or most suitable approach.

There are reports from RIH of synergies in-country between WE4F goals and donor country initiatives and other openings; learning from results will increase efficiencies over time.

WE4F partners’ involvement

EQg: Founding partners interaction within WE4F, alignment with RIH for EE, lessons⁴⁸

Limited stage

EQg finding: There are reports from RIH of synergies between Program goals and donor country initiatives and other openings; there is opportunity to expand on such experience.

Comparative cost of WE4F – A MENA RIH respondent is confident that WE4F is doing well on IF, comparing the amount it invests with (e.g.) the amount of external funding that innovations raise, and, that this can be a proxy for impact on emission saving.

⁴⁸ **EQg:** How well did founding partners interact within WE4F and what lessons to take from their interactions? To what extent did alignment between FPs and with RIHs contribute towards an improved enabling environment for innovators?

An NGO working with younger companies in a shorter program anticipates its innovations will raise as funds in amounts equal to the grant (1:1). The RIH respondent expects WE4F to achieve a ratio of 5:1 (five times more funds raised than the amount of the grant). Quantitative data on this are presented in section 3.3.3.

The SCA RIH respondent notes that the WE4F approach of combining grants with TA, IF and support for an enabling (policy) environment is unique.⁴⁹

Findings on founding partners involvement: The directly engaged partners of USAID and SIDA in MENA are regarded as providing “outstanding” support in scaling up results; they have connected with local missions and partners and leveraged grants (IF). The USAID secretariat is regarded as having strong expertise and mentoring which is well appreciated⁵⁰.

Each donor has its own policy emphasis and coordination of this is improving and now the RIH can work in harmony with the donors, to achieve objectives: “the bigger picture”.

Founding partners have a direct effect on enabling environment. A MENA respondent gives examples:

- in Jordan, MFA-NL helped an innovation working on composting, to get through bureaucracy and get the right permits.
- support in IF: SIDA and USAID arranged for an investment fund financing innovations for early-stage, smaller enterprises; the respondent notes that embassies are not involved in a systematic manner and that this something to improve on.⁵¹

From the bootcamps it was mentioned that donors could support the project by introducing the Hubs to local missions and connect the hubs with private sector companies that are working on sustainable agriculture. Donors are reported in MENA supporting major labs in each country and collaborating with governmental institutions to find ways to efficiency and standardization of testing with collaboration with universities. These bootcamps also discussed challenges in the hubs that affected the enabling environment. The bootcamps allowed the innovations to share challenges which were prioritized, and an action plan developed.⁵²

WE4F MEL system

EQ1k: Innovations using WE4F resources efficiently, to max. impact on environmental sustainability, biodiversity⁵³

Limited stage, also see EQo.

EQ1k findings: The MEL system, where it applies to innovations’ impact on environment, is still in development. Training has been provided on monitoring environmental impact (e.g., on water, energy, emission) and environmental monitoring tools are introduced and used (more on that in 3.6).

Indicators and -targets are often presented in separate documents, and units are not always clear; see detailed feedback on the indicators in Annex 9.⁵⁴ The PMEP is a rather inaccessible document, in the sense that it does not allow any navigation in its 41 pages: not in the sidebar (no headings defined), and not from the table of content. This discourages those searching for the instructions (including this Evaluation, to some extent). The document does not explain the overall purpose of the MEL system; a learning purpose is clear from the section on learning (p.18), the purpose of informing program management is also obvious. Learning events mention engagement of the WE4F Steering

⁴⁹ Source: Workspace RIH KII we4f.docx EQk

⁵⁰ Source: Workspace RIH KII we4f.docx EQg

⁵¹ Source: Workspace RIH KII we4f.docx EQg

⁵² Source: MENA-EE-deck-donor meeting and SSEA-EE deck Donor Meeting

⁵³ **EQ1k:** To what extent were resources and support provided by WE4F used efficiently by innovators and other WE4F-supported partners to maximize positive impacts on environmental sustainability or biodiversity?

⁵⁴ Source: indicators as presented in WE4F PMEP_January22.docx, WE4F KPI PIRS_Jan22.docx, WE4F Full PIRS_November21.docx).

Committee, the Secretariat and the RIHs, but innovations are not mentioned in these activities.⁵⁵ For the first 6 months of the program, Microsoft Excel spreadsheets were used to collect and M&E data, in fall 2021 the use of Sales Force started, and this will help with M&E data quality.

Updating of targets - In May and June 2022, the MENA and SSEA innovations revised their CFI1 targets listed in the AWP. The Year 1 targets did not change. For some indicators, the Year 2 and some LOP targets are being updated based on year 1 performance by innovations (especially since there was no baseline).

One reason to do so is that the total of RIH targets do not add up to the USAID target which is often lower (adjusting because innovators often overestimate their ability to reach targets, for some RIH expected to miss targets, or simply because it is hard to set a target when innovations' own assessment of what their targets could be is still not available).

Target setting is generally a 3-step process:

1. In the theory of change phase, high-level program targets, based on work of Syspons in facilitation sessions are established. In the multi-donor setting, some targets were lowered based on the requests of specific donors
2. Some KPI targets are entered into the RIH contracts; for example, KPI2 (end users) is a hard target. On this indicator, a LOP in SCA is 1,000,000 and in MENA 750,000; these are both hard targets, related to contractual responsibilities. Other targets are technical targets, which are adjusted based on innovator's performance
3. Finally, there are mutually agreed targets set between USAID and the WE4F secretariat, on various indicators.

Adjustments may be made as data from innovations' results become available to RIH, allowing them to set reasonable targets. Innovations may be over-ambitious ('at the edge of realism') when they set their targets and after the first results may need to reset targets.

Details on how targets are set are provided in Annex 9.

Some additional targets were added in the AWP that were not present in the original AWP, such as Gin45 (area under improved management practices).

The reporting for Year 1 Semi-annual reporting was undertaken in Excel, but as WE4F has, Salesforce will be used the upcoming years.

For the food, water and energy indicators, the methodology and standards to collect data were fully developed and trainings were provided in October 2022. For other indicators, targets are being updated, or units further explained; this means that a constantly updating PMEP document should be accessible to many.

Recommendations for the MEL system:

1. Improve the PMEP document, including the addition of navigation/headings, and an explanation on how targets are set at different levels (innovation level, hub level, program level) and how targets may be changed, or indicator standards and methodology refined.
2. Update and clarify indicators (see suggestions in Annex 9)
3. If not already intended (the Evaluation Team is yet to verify), it is recommended that (summaries of) relevant MEL information continue to be shared and reflected on in bootcamps; this has already yielded valuable feedback for WE4F; this can include a reflection on the next point:
4. Monitoring by innovations for WE4F could be improved, in terms of making indicators clearer (do all innovations understand the indicators, e.g., how to calculate profit with the EBITDA, how to measure carbon emission), and use them in the same way, making monitoring relevant for innovations themselves, making monitoring leaner, more efficient if possible.
5. Reconsider how EIA is undertaken (efficiency, scope); see suggestions in 3.6.5.

⁵⁵ Source: WE4F PMEP_July22.docx

Food production data collection – In all three RIH the calculation is done “based on experience,” innovations are helped to create a method to calculate production. One RIH respondent notes “we are developing a manual for each of the indicators”⁵⁶. The USAID Secretariat noted that the WE4F manual and trainings for all KPIs and Gins that most innovators report to were updated and finalized in October 2022 and were used in the 2023 semi-annual reporting cycle (which concluded between October and December for all WE4F innovators in SSEA, MENA, and SCA).

Water data collection – The SSEA RIH respondent trusts innovations’ data on water saving. All RIHs are gaining expertise in assessing water saving⁵⁷.

Energy data collection – The SSEA RIH respondent explains that most data on energy consumption come directly from meters; there are standards to estimate energy generated by solar panels and windmills and the benchmark for diesel is 0.2 kWh/liter. The methodology does not differ much between innovations.

To report carbon emissions, there are also “standard emissions calculations, same as IBCC standard, except not as detailed.” The CLEER tool⁵⁸ is, however, an international standard and its use in WE4F is becoming well established.

Both SSEA and MENA RIH respondents are confident about accuracy of energy use data (MENA: “100%”)⁵⁹.

3.5 Impact: baseline and aspects on progress end user level

- **End user numbers are robust, and growth is projected to reach targets.**
- **A range of farming practices are being improved, according to end-user surveys, and further insight on innovations impact on the farming systems and beyond (along the lifecycle socioeconomic and environmental impact) will be gained over time.**
- **Food production targets are met, mostly from medium and larger scale farms.**
- **Data on income increase are limited; preliminary findings show that most end users report an income increase.**
- **Women end-users are reporting higher income from agricultural activities.**
- **There is evidence of energy savings (for 13 innovations); most innovations are yet to report on energy savings.**
- **Greater access to water is reported but water savings (and targets) are not yet reported for most innovations (as of June 2022) and were not being achieved on any scale.**

IM1: Innovations have scaled sustainable new solutions to challenges in the WE4F Nexus

IM2: Customers in the market are using the newly developed products or services of the innovations

IM3: WE4F contributes to increased food production along the food value chain through a more sustainable and efficient usage of water and/or energy

IM4: WE4F contributes to increased income for women and men including the poor, in rural and urban areas

This section looks into impact-level results, in terms of end user growth (IM1, in 3.5.1), the overall impact at smallholder level (IM2, in 3.5.2), food production and processing while saving water and/or energy (IM3, in 3.5.3) and income (IM4, in 3.5.4).

⁵⁶ Source: Workspace RIH KII we4f.docx /SSEA re. KPI3

⁵⁷ Source: Workspace RIH KII we4f.docx re. EQ1e

⁵⁸ USAID Clean Energy Emission Reduction (CLEER) Tool: a user-friendly calculator based on internationally accepted methodologies, enabling users to calculate emissions reduced or avoided from clean energy activities. The tool helps to:

- estimate, track, and report greenhouse gases (GHGs) reduced or avoided from clean energy,
- estimate and project the amount of energy generated or saved from clean energy activities,
- identify high impact activities with cost-effective GHG reductions,
- evaluate the emissions reduction potential of planned activities and possible alternatives, and
- estimate projected GHG emissions reduced or avoided to 2050.

⁵⁹ Source: Workspace RIH KII we4f.docx re. EQ1f

Since WE4F has been in operation for just over a year all impacts will not yet be realized. Despite this, some direct measures of impact on end users will be assessed on the basis of recall as respondents report changes in recent memory and the administrative data also carries report on key factors such as food production measured against targets.

Given the inability to compare current results to baseline information, the Evaluation Team has contrasted results compared to the targets. Comparisons made from the M&E data can also be made with data received from the end user survey and the interviews with innovations.

The contribution of WE4F (EQ2) will be considered in this phase but not finally judged. Since this is an MTR we will see the beginning of some early impacts, but the focus is more at establishing a baseline from which to measure progress.

3.5.1 Impact on end-user numbers (IM1)

A key indication of the progress of WE4F is the ability of those innovations receiving support in funding and TA from WE4F to significantly increase their numbers of end users: scaling up. This aspect is reported on in section 3.3.1, as it relates to effects in terms of innovations' capacities (to reach end users). In this section, the focus is on KPI2: the total number of end users and looking at these figures it needs to be kept in mind that some (few) innovations with high end user numbers can contribute disproportionately to these totals.

Table 12 shows the numbers of end user household members in CFII: year 1 result compared to the MENA RIH and SSEA RIH year 1 targets; the results are disaggregated for wealth (income quintiles) and gender.

Table 12: Number of end user household members (CFII), by region, wealth and gender (KPI2)

Region	Year 1 target at RIH level	Year 1 result	% end users being poor	# end users Q1 & Q2 (poorer)		# end users Q3, Q4 & Q5 (better off)	
				total	% female*	total	% female*
SSEA (n=12)	70,000	157,966	94%	149,221	36%	8,817	32%
MENA (n=15)	37,500	96,388	72%	69,343	13%	27,045	10%
Total	107,500	254,354	86%	218,564	29%	35,862	16%

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

Overall, WE4F reached the year 1 target and the two RIH's year 1 target was surpassed by 2.3 times. The percentage of the poorest end users indicated by Quintile 1 and Quintile 2 was 86%. The aggregated results show that innovations in both RIHs have largely exceeded their respective end user targets: SSEA 226% and MENA 257% of the target. The proportion of end users in lower income quintiles is high: 94% in SSEA and 72% in MENA 72% of end users is found in this category of poorer end users. Only 29% of the end users in Quintiles 1 and 2 were female. Showing that while WE4F is meeting the BOP with 86% of end users being in the Quintile 1 and 2 only a little more than a quarter is female.

Data from the end user survey show a similar picture when looking at farm size. In SSEA 74% of end user households have smallholder farms of less than 1 ha (the median is 0.4 ha, n=125); most of these farms (80%) are focused on irrigated crops. This confirms that WE4F in SSEA is reaching the "base of the pyramid". In MENA only 10% of the end users farm on less than 1 ha. Here the context is very different, and the drier conditions may present a different calibration of the relative size of a smallholder farm.⁶⁰

⁶⁰ Source: Tables from SSEA end user data. docs (generated from Monkey Survey for end users)

KPI2 - Number of end user farmers (f,m)⁶¹

Limited data: not consistently disaggregated.

KPI2 findings: The end user targets set at the RIH level are being met and exceeded by large margins. There is considerable variance between innovations, as discussed in 3.3.5: there is some over-achievement (and for some, extremely so), and some under-performance. On average, however, the end user results remain robust. As for gender disaggregation: 29% of the end users in Quintiles 1 and 2 are female (in the other quintiles it is 16%).

KPI2 recommendations, current phase: More reflection on the setting of targets could be considered to ensure targets set by the innovations are realistic (neither too high nor too low) especially when new innovations join WE4F.

KPI2 recommendations for extension: There should be further reflection and discussion with innovations in setting targets (end user and all targets).

3.5.2 End users using the innovation (IM2)

This section focuses on Impact 2 (IM2), on end users applying the innovation.

Time with the innovation – To assess improved agricultural productivity, end users must have spent some time with the innovation and, as a result, have adopted changed farming practices. The 163 survey respondents (143 respondents in SSEA incl. 36 females; 20 respondents in MENA, none were female) indicated the average length of time they used the innovation (Table 13).

Table 13: End users' length of time with the innovation

Length of time	SSEA (years) (n=43)	MENA (years) (n=20)
Average	2.25	1.83
Minimum	0.33	0.25
Max	10	8
Median	1.42	1.5

Source: Cleaned September 20 2022 MENA End User WE4F Evaluation, cleaned tables end user data for SSEA September 19 2022

The average time reported by end users employing the innovation is unexpected. WE4F support is less than 2 years, and the average length of time is greater.

3.5.3 Impact on food production, and water & energy saving (IM3)

3.5.3.1 Food produced

Here the report will look at KPI3, which is food produced with support from the innovation. Table 14 shows the food produced (KPI3), by producer type and by region.

Table 14: Food produced (t, year 1) by region, by producer types (KPI3)

Region	smallholder farms		larger farms		Companies		total	program y1 target
	production (t)	%	production (t)	%	production (t)	%		
SSEA (n=9 innovations)	21,361	99%	138	1%	156	1%	21,655	170,000
MENA (n=12 innovations)	321,272	27%	831,016	70%	35,906	3%	1,188,194	101,250
Total	342,633	28%	831,154	69%	36,062	3%	1,209,849	271,250

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

From Table 14 we see that 1.2 million tons of food has been reported for the WE4F program. With the 17 innovations reporting, WE4F has produced considerably more food than the year 1 targets, 69% of the food produced came from larger farms and 28% from smaller farms. The larger farms are concentrated in MENA and in the water and energy innovation focus. The table with the breakdown of this information is in Annex 8.

⁶¹ by -household (hh) income quintiles* using energy or water-efficient WE4F innovations *multiplied by* av. hh size/country; gender target: 30% f; baseline: 0; RIH LOP targets: SSEA: 1,000,000; MENA: 750,000; SCA: 1,000,000; year 1 targets: SSEA: 70,000; MENA: 37,500.

NB: program LOP target (originally 2,400,000, now 2,500,000) is lower than total of RIH targets.

*: 5 quintiles: i) ...; ii) ...; iii) ...; iv) ...; v) ... (define) (Q1, 2: poorer farmers; Q3, 4, & 5: the ones better off)

Given the BoP approach, the production at the base of the pyramid seems small in comparison to what is produced by larger farms; or this raises questions on how the categories ‘smallholder farms’ and ‘larger farms’ are defined (without taking into account the context).

Innovations’ own food production targets and results – For WE4F 10 innovations met their year 1 target and 9 did not meet the target, the other 5 either did not report. There were 4 innovations that did not have data and 1 that had not yet measured. Taken as a whole this establishes only about 50% of the innovations met their year 1 target.⁶²

While food production is the focus of WE4F the end user survey found that the innovations have had some effect on the quality of the food produced: 27% of respondents confirmed this, while 34% of respondents found there were no such effect (n=143).⁶³

KPI3 - Food produced (t) as result of WE4F innovations⁶⁴: types: i) smallholder farmers; ii) larger farmers; iii) small companies; vi) other companies; v) cooperatives

Limited data

KPI3 findings: Data are insufficient at this stage to draw in-depth conclusions.

Production targets are being met but from larger scale farmers in the water and energy sector. From the results of 21 innovations the target was passed by more than tenfold. Medium-large scale farms are responsible for most (69%) of the food produced.

KPI3 recommendation for the current phase: Recalibrate the KPI3 indicator on user types (smallholder vs larger farmers) in a regional, national, or local context. This could be done in the surveys, besides indicating the farm size, farmers can themselves declare in which category they belong. Then the averages of each category can be calculated so that the range is clear for each farm type/size. As WE4F continues, attention should be paid to smaller farmers (which are the overwhelming majority in SSEA).

KPI3 recommendations for extension: Particular attention must be made to strengthening the potential for food production among small holder farmers at the base of the pyramid. Further studies are needed to ensure that this strategic objective is being met.

3.5.3.2 Food processed

KPI4 tracks the food processed by the innovations with support from WE4F. Only 3 innovations provided data on food processing technology in their AWP and had year 1 results.

The three innovations processed 2000 tons of food during year 1 of the program. Promethean from SSEA manages a hub serving multiple clients, collecting milk; this can explain why the amount of food processed is so high and accounts for 97% of the food processed.

During the interviews with the innovations only one respondent (1 of 7) shared that the innovation has helped increase food processing due to cleaner water. Four other innovations shared that the innovations have not helped yet, but there are possibilities they expand and improve services in the future for this to be the case. From these discussions it looks like in the coming years of WE4F the amount of food produced will increase.

KPI4 – Food processed (t) as a result of WE4F innovations, by end user type⁶⁵

⁶² Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

⁶³ Source: Tables from SSEA end user data.docs (generated from Monkey Survey for end users)

⁶⁴ by end user type*; baseline: 0 t;

RIH LOP targets: SSEA: 3,000,000 t; MENA: 2,025,000 t; SCA: 1,300,000 t

Year 1 targets: SSEA 170,000 t; MENA: 101,250 t

NB: program LOP target (originally 5,300,000 t now 5,500,000 t) is lower than total of RIH targets.

⁶⁵ baseline: 0 t; RIH LOP targets: SSEA: 100,000 t; MENA: 810,000 t; SSEA: 475,200 t

Year 1 target: SSEA: 1,500; MENA: 40,500 t

NB: program LOP target (originally 2,340,000 t, now 2,125,000 t) is higher than total of RIH targets, it is revised downward because food processing innovations are fewer than foreseen, probably the target will be further adjusted downward (source: L. McMahan, USAID).

*: types: i) smallholder farmers; ii) other farmers; iii) small companies; vi) other companies; v) cooperatives

Limited data

KPI5 finding: At the time of the MTR there has been more than 2000-ton of food processed by only 3 innovations. Currently it is not clear if this is an issue regarding reporting or if this is not a focus of the innovations that are part of the project.

Despite the enormous growth of food processing in the food supply chain, this is a relatively undeveloped aspect of food production and distribution among the innovations.

KPI4 recommendations for the extension: Since the marketing of food is associated with food processing, further discussion is needed on lag in food processing. In relation to overall food production, the 21 innovations for which data is available, exceeded the year 1 targets more than tenfold in year 1. This is being achieved in conditions in which overall there is a decline in the use of energy although some increase in use of water.

KPI4 recommendations: To effectively measure the relationship between improved food production, effects on land use (area), and improved practices and more efficient use of water and energy, additional information needs to be gathered regarding crop yields, and to identify patterns or causes of the changes. Particular attention must be made to strengthen food production from smallholder farmers at the base of the pyramid.

3.5.3.3 Water saved

KPI6 tracks water saved by the innovations. Water saved is one of the key goals of WE4F, but it is one of the most difficult indicators to calculate except where closely monitored irrigation is a feature of farming. Most of the data in this section comes from the end user survey, as there is limited data regarding water saved at the time of writing.

Table 15 presents the water saved, by end user type, by region, for 9 innovations.

Table 15: Water saved (l, year 1), by end user type, by region (KPI6)

Region	smallholder farmers		larger farmers		companies		total (l)
	volume (l)	%	volume (l)	%	volume (l)	%	
SSEA (n=1)	10,492,000	100%	0	0	0	0	10,492,000
MENA (n=8)	254,329,838	74%	39,917,000	23%	3,844,000	2%	258,213,755
Total (n=9)	138,170,000	76%	39,917,000	22%	3,844,000	2%	181,930,000

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

*Rounded to the nearest thousand

From the first year of WE4F 9 innovations reported 181,930,000 liters of water was saved. From Table 15, analysis is made from a low number of innovations reporting. Most water in year 1 was saved in the MENA region and three quarters of the water saved is on smallholder farms.

Surprisingly, more water is saved in energy focussing innovations than with innovations with a water and energy focus. It is to be kept in mind that the data is not complete. The total amount of water saved for year 1 is 34% of the LOP target. This is a good start in reaching the overall LOP goal.

The end user survey had several questions regarding water usage. Table 16 shows results from the end user survey, on the question on changing water use.

Table 16: Quantity of water used changed

Response	SSEA	MENA
Increased water use	26	2
Decreased water use	1	1
No change in amount of water used	104	17
Total responses (n=151)	131	20
No Response	12	0

Source: Cleaned September 20 2022 MENA End User WE4F Evaluation, cleaned tables end user data for SSEA September 19 2022

Analysis of the 151 respondents establishes that most smallholders (80%) the amount of water use did not change (104, or 73%), or no response (12, or 8%)⁶⁶. Among the remaining 28 reported the water use had increased (20% of farms in SSEA, 10% of farms in MENA). This could be due to access to additional water pumps (possibly solar water pumps) leading to more irrigation which increases yields. A clear conclusion cannot be made at this time and will be further investigated.

When looking at the approach of the innovations regarding water capture and storage there are 9 innovations that focus on irrigation and 6 that work to reduce water use. Remarkably, there is no innovation for reuse or treatment of water.

Water targets – Of the 10 innovations with targets and data only 2 had met their year 1 targets. There are 12 innovations that do not have targets for water in their AWP.

Water unintended consequences – At the hub level there are some reports of concern that solar pumps could lead to increase in water use. “There are schemes to encourage micro irrigation, government assistance in critical areas.” There are also reports on innovations focused on selling water- and/or energy-efficient innovations, not necessarily on making farming more climate resilient.

Water saved is one of the key goals of WE4F, but it is one of the most difficult data to capture except where closely monitored irrigation is a feature of farming. There are opportunities for greater rigor in this field. In the interview with the SCA RIH it was mentioned that discussions were being pursued with the International Water Management Institute (IWMI) in Southern Africa to improve water monitoring. Progress is happening on calculating water savings with the use of solar power.⁶⁷

During the annual convening there were a few innovations from the SSEA region that discussed the importance of tracking and monitoring water usage. That increasing access to water pumps and water is important but so is understanding the entire water balance of the area. This information can be used by local authorities to help with permitting water usage especially for high use industries such as tourism.⁶⁸

EQ1e – Water efficiency/accessibility? Meeting targets? Unintended effects?⁶⁹

Limited data

EQ1e findings: There is considerable evidence of increased water availability and accessibility and through use of solar water pumps for groundwater. In innovation KIIs there is also concern reported about the potential overuse of water resources. Water savings are not yet reported being achieved on any scale. From end-user surveys most respondents reported no change, or increased volumes of water used, and a small minority mentioned savings being achieved.

EQ1e recommendation: WE4F needs to give closer and systematic attention to the issue of water savings and the challenge of water overuse and falling water tables. The program should share approaches that some innovations are using to understand water balance in areas where access to water increases.

KPI6 – Total water consumption reduction* (l) by end user type, as result of the use of WE4F innovations⁷⁰**

⁶⁶ Source: Tables from SSEA end user data.docs (generated from Monkey Survey for end users)

⁶⁷ Source: Nancy Shalaby, Managing Director IRSC Power for Generations, email to DH, 14 May 2022

⁶⁸ Annual Convening 2022 notes

⁶⁹ **EQ1e** – Did WE4F-supported projects increase [water efficiency/make water more accessible](#)? Did WE4F projects meet their water efficiency/availability targets? Overall, across all innovators, did the program meet the water efficiency/availability targets? What were the unintended effects of WE4F-supported projects on local water efficiency and water resources?

⁷⁰ baseline: 0 l; RIH LOP targets: SSEA: 1,000,000,000 l; MENA: 750,000; SCA: 5,000,000 l; Year 1 targets: SSEA 6,000,000 l; MENA: 37,968,750 l60

NB: program LOP target (2,000,000,000 l, unchanged) is much higher than total of RIH targets, but given experience from SWFF it is expected that the target will be exceeded (source: L. McMahan, USAID).

*: saved in irrigation: compared to alternative technology, or practice before the innovation was used; saved in water storage: storage capacity x times filled x % used in agriculture; saved in water re-use/treatment: water re-used or treated, used in agriculture; saved in aquaculture/water re-use: water input - water released + water used for on farm irrigation

** types: i) smallholder farmers; ii) other farmers; iii) small companies; vi) other companies; v) cooperatives

Limited data

KPI6 finding: The data are insufficient, to fully understand the water savings of the innovations in terms of innovation reporting and clarification on how water is saved by the innovation.

3.5.3.4 Energy saved

This section of the report will look at KPI5, or energy saved.

Table 17 shows the innovations' energy targets and results for year 1 at the regional level.

Table 17: Innovations' energy saving targets and results, year 1 (kWh)

Innovation	LOP target	Year 1 target	Year 1 result	Year 1 target met
SSEA (n=6)	7,247,990	1,588,304	10,179,541	4 yes, 2 no
MENA (n=7)	150,231,444	34,173,862	13,728,834	4 yes, 3 no
Total (n=13)	157,479,434	35,762,166	23,908,376	8 yes, 5 no

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

There are 13 innovations that contributed to the saved energy in year 1 of 24 M kWh. Since only 13 for CFII have reported, it is clear that most of the innovations have yet to report for this KPI at this time. As WE4F continues and more data is available it will be easier to determine the how the innovations contribute to energy saved.

There is evidence of energy savings for all innovations as 8 out of 13 met their first-year target. The amount of savings is greater in the MENA region. And taking all innovations' targets together, in SSEA the total result is 40% of the sum of targets, and in MENA the total result is 67% of the sum of targets. The targets are set by each innovation with consultation with the Hubs, and it seems that during the first year it has been difficult for the innovations to reach the targets they have set. This could be due to delays in implementation and COVID-19.

To investigate the energy savings further Table 18 shows the energy saved in year 1 of WE4F, by region and by end user type.

Table 18: Energy saved in year 1 (kWh), by region, by end user type (KPI5)

Region	Smallholder farmers		Medium & larger scale farmers		Companies & coops		Total
	Year 1	%	Year 1	%	Year 1	%	
SSEA (n=6)	2,267,540	100%	0	0	0	0	2,267,540
MENA (n=7)	4,391,191	32%	8,803,812	64%	533,832	4%	13,728,835
Total (n=13)	6,658,731	42%	8,803,812	55	533,832	3%	15,996,375

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

Of the nearly 24 M kWh energy saved, 42% is from smallholder farms, 55% from medium and larger scale farms, and the remaining 3% in companies and cooperatives. In SSEA all energy saving data are on smallholder farms. The data is rather incomplete (n=13), the M&E data does not share how the energy is saved, additional investigation would be needed to determine this. The end user survey gives an indication of the energy transition: in SSEA the use of renewables was reported by end users: 24 respondents name hydropower, 23 name solar. In SSEA 69% (n=81) end users changed their energy source. From a small sample of MENA innovations, no energy source changes away from fossil fuel were reported.

Progress is being made on calculating energy savings with the use of solar power. One innovation estimates that in irrigation, replacing diesel by solar (Nano System Grid) cuts fuel costs by half and then more; the investment pays itself back in 18 months, and will then provide "23 years electricity for free"⁷¹.

The end user surveys had multiple questions dealing with energy and whether the innovation has helped access to energy or the type of energy used: 37 of the 152 (24%) respondents reported that the innovation led to less energy use. A larger proportion (46.5% of all respondents) reported improved

⁷¹ Source: Nancy Shalaby, Managing Director IRSC Power for Generations, email to DH, 14 May 2022; with file: Comparison Solar & Diesel Calculator.xlsx

access to energy. In SSEA, 37% of respondents (n=96) reported that adopting the innovation led to using less energy; in MENA this is the case for 14% of respondents (n=14)⁷².

While solar water pumps are welcomed there is reporting of “over-pumping” and declining water tables.

EQ1f – Energy efficiency/increase renewable energy? Meeting targets? Unintended effects?⁷³

Limited data

EQ1f finding: Most innovations met and passed their year 1 energy efficiency targets as all indicate evidence of energy savings.

In relation to the energy transition: from end user surveys 69% of SSEA respondents reported changing their energy source; in MENA no energy source changes were reported as transition away from fossil fuels.

There is unevenness among innovations and there is greater energy savings in SSEA by smallholder farmers and in MENA by medium-large farmers.

At this stage there are no reported unintended consequences.

KPI5 – Total energy saved* (kWh) by end user type as result of the use of WE4F innovations**⁷⁴

Limited data

KPI5 finding: From a limited number of innovations a considerable amount of energy is saved at the small holder farms despite this total energy saved is 68% of the LOP target.

Progress is being made in energy saving but targets are not being met in the case of a number of innovations for which data is available.

KPI5 recommendations for the current phase: This is a major achievement, and the success of this intervention should be written down.

Success stories from innovations with significant savings should be written and circulated.

KPI5 recommendations for extension: There should be more tracking of energy transition from fossil fuels to renewable sources.

3.5.3.5 Productivity

Productivity (as explained in the definition section at the beginning of the report) is defined here as the output (production) against input in terms of area (that is: yield), and energy and water.

End users reporting changes in the farming system that have an effect on yield – Survey respondents in SSEA innovations were asked how the innovation helped improve yields (to indicate more than one); unfortunately, in MENA there is insufficient data. Table 19 shows the responses.

Table 19: Ways the innovation has improved yields (survey in SSEA)

Response (n=58 respondents out of 163 end users surveyed)	instances
Reducing reliance on rain	20
Better water management/irrigation area	19
Improved production practices	15
Other	12
Total instances	66

⁷² Source: Tables from SSEA end user data.docs (generated from Monkey Survey for end users)

⁷³ **EQ1f** – Did WE4F-supported projects increase agricultural energy efficiency/increase the use of renewable energy? Did WE4F projects meet their energy efficiency targets? Overall, across all innovators, did the program meet the energy efficiency/availability targets? What were the unintended effects of WE4F-supported projects on local agricultural energy efficiency, access, and energy resources?

⁷⁴ baseline: 0 kWh; RIH LOP targets: SSEA: 20,000,000 kWh; MENA: 400,000,000 kWh⁶³

NB: program LOP target (originally 674,000,000 kWh, now 675,000,000 kWh) is probably going to be revised downward as not every RIH can make its (over-ambitious) targets (source: L. McMahan, USAID).

*: saved compared to alternative technology, or practice before the innovation was used

** types: i) smallholder farmers; ii) other farmers; iii) small companies; vi) other companies; v) cooperatives

A full set of responses to key questions is available from surveys of SSEA innovations. Of the 163 end users surveyed, 58 (35.5%) responded that yields had improved in one way or another. The largest instances mentioned were due to changed production practices largely including water management, as a result of the innovation.

There is another indication, on end users' confidence: nearly all say they will recommend the innovation to others.

EQ1g – Agricultural productivity and cc adaptation? Unintended effects?⁷⁵

Limited stage, limited data

EQ1g finding: A definition of productivity is provided in definitions (beginning of this report). With that definition, the findings here concentrate on productivity⁷⁶.

A proportion of end users reported some impact on productivity and identified what change in production methods led to it. From the end user surveys improved yields were reported due to 'reducing reliance on rain', 'better water management/irrigation' and better production practices.

In relation to end users adapting to climate change, within the definition of productivity this would be about (reducing) the use of water, and that is discussed in 3.5.3.3.

Without quantitative yield data, productivity cannot be quantified. Data on food production, when not linked to data on area for that same production, cannot be used to calculate yield.

EQ1g recommendation to initiate in this phase, and fully implement in the next phase:

Apart from collecting production data (useful, and necessary for KPI3), there is a need to focus at farm level, and from *a small selection of end users* (farms) to collect specific data on crop yields; changes in crop yields need consistent examination over time to identify patterns and causes of change. Doing this, a distinction can be made between farms from end users at the base of the pyramid and larger farms; this could then be compared with available gender yield gap data (synergy).

3.5.4 Impact on income (IM4)

To look at income increase the Evaluation Team looks at KPI7 and responses from the end user surveys. There is uncertainty in what the data on income increase represents. End users surveyed by Dexis provide a more positive picture than the M&E data from WE4F – and the latter may be incomplete due to the requirement that innovators be able to validate an increase in income among end-users and some WE4F innovators don't have a direct relationship with the end-users of their innovation. Table 20 shows the number and fraction of end users that experienced an income increase related to the innovation.

Table 20: Number of end user household members ('end users') that saw household income increased (KPI7)

Region	Quintile 1 & quintile 2 end users				Q3, Q4, & Q5 end users
	Total no. of end users (KPI2)	End users whose income increased	% female	% with income increased	Whose income increased
SSEA (n=2)	157,966	17,255	54%	11%	0
MENA (n=2)	96,388	1,605	2%	2%	0
Total	254,354	18,860	49%	7%	0

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

⁷⁵ **EQ1g** – Did WE4F-supported projects lead to more agricultural productivity and adaptation to climate change? Did WE4F projects meet their agricultural productivity targets? Overall, across all innovators, did the program meet the agricultural productivity targets? What were the unintended effects of WE4F projects on agricultural productivity?

⁷⁶ The 'unintended effects' part of EQ1g is duplicated in other questions (EQ1l, EQ1m, and EQ1n, with the same terminology or using the word 'trade-off'), which are discussed in 3.6 Sustainability (in 3.6.5).

These are early results, based on limited data, (only 4 innovations reported), 7% of the poorer end users seems to have experienced an increase in income. WE4F saw a total of 18,860 end users that experienced an income increase with 49% of that being female end users. This only gives a total of 7% of the total end users that have experienced an increase in income.

With the data available a large majority of end users in the administrative data did not report an income increase due to an inability to validate their income claims with end-users. Data collected by the Dexis Evaluation Team from end users directly provides a more positive picture.

Just three CFI1 innovations responded to the question on what proportion of their smallholder clients would have increased their income as a result of the innovation. They provided figures between 50% and 90%⁷⁷.

The following tables report further on the findings from the end user survey regarding income.

Table 21 shows end user responses on the question whether the innovation contributed to an income increase.

Table 21: End users reporting whether their income increased as result of the innovation

Response (n=163)	SSEA	MENA
not at all	16	1
a little	87	10
quite a bit	30	9
respondent total	133	20
no response	10	0

Source: Cleaned September 20 2022 MENA End User WE4F Evaluation, cleaned tables end user data for SSEA September 19 2022

Response (n=163)	SSEA	MENA
No	3	0
Yes	111	19
% Yes	97%	100%
Respondent total	114	19
No response	29	1

Source: Cleaned September 20 2022 MENA End User WE4F Evaluation, cleaned tables end user data for SSEA September 19 2022

Overall, 88.8% of the respondents shared their income increased as a result of the innovation, in SSEA, 117 of 133 (88%) of the respondents indicate that the innovation led to increase in income, in most cases 'a little'. From the small sample in MENA 95% reported an increase. This high percentage was also true for if the innovation increased women's income, 97.7% % (130 of 133) of the respondents shared that the innovation increased women's income⁷⁸.

The incomes of end users are presented in Table 22 that were self-reported in the end user survey.

Table 22: End users reporting their income (USD), by region

Income per year (USD)	SSEA (\$) (n=141)	MENA (\$) (n=19)
avg	3,979	3,927
Min	260	2,200
Max	250,000	6,200
Median	1,800	3,688

Source: Cleaned September 20 2022 MENA End User WE4F Evaluation, cleaned tables end user data for SSEA September 19 2022

The overall average income for all respondents (n=160) was 3,953 USD. The table shows that income averages are similar between SSEA and MENA, but in SSEA the range is much wider, and the median much lower than the average; in MENA the median and average are nearly the same. This would be the baseline data as there is no data of the income of the end users before they started using the innovation. From the end user survey 97% from SSEA and 100% from MENA of the end user surveyed reported that their income increased due to the innovation. From the data available

⁷⁷ Source: Dexis innovation survey (Innovation survey 7 11 22.xlsx)

⁷⁸ Source: Tables from SSEA end user data.docs (generated from Monkey Survey for end users)

from the end user survey, there is evidence that incomes for the end users have increased for women in the household as well.

There is no concrete evidence regarding income increase, there is qualitative data from the survey, but the M&E data did not have this detailed data. The average income would be a baseline now and can be compared to the information collected for the final evaluation.

EQ1i – BoP, smallholder farmers, women incomes⁷⁹

Limited data

EQ1i finding: The end users in the survey nearly all report an income increase, this proportion is as high or higher for women. This proportion is not found in administrative data.

KPI7 – Number of end user farmers (f,m), by -household (hh) income quintiles* that experience an increase in income, *multiplied by* av. hh size/country; baseline: 0; gender target: 30% f⁸⁰

Limited data

KPI7 finding: There is uncertainty in what the data on income increase represent. End users surveyed by the Dexis Evaluation Team provide a more positive picture than the data from WE4F as WE4F data reported from WE4F innovators was incomplete at the time of this report.

In the end user survey from the Dexis Team, 88.8% of the respondents reported their income increased as a result of the innovation a high level of end users reported women's income also increased.

None of the end users surveyed reported receiving financing to buy the innovation, such financing is, however, found in the M&E data.

KPI7 recommendations: Further end user surveys are needed to confirm increases in income and the reasons for such changes.

EQ2 – Outcome, impact attribution to WE4F⁸¹

Limited stage

EQ2 finding: Since WE4F provides only a proportion of the funds employed by innovations WE4F inputs are regarded as contributions towards results. Further data collection is needed to assess the relative contributions of various donors and partnerships.

3.6 Sustainability

- Across the SSEA and MENA regions, 29% of innovations make a sufficient profit (already).
- The number of jobs created is unlikely to reach its target; most jobs created are for men (only 18% for women).
- Innovations (with the IEE) and end users do not identify all effects on environment and climate, including biodiversity and (community) natural resources (incl. water); where innovations increase the use of land, water, pasture and forest resources, the effects are not always considered.

Section 3.6 assesses the **sustainability** (EQ1l, EQ1m, EQ1n, EQ1o and EQ1p) at the program, innovation, and end user levels, presenting data from indicators KPI1 (profit), Gin10 (jobs), KPI8 (monitoring water & biodiversity), Gin6 (GHG emission), Gin45 (surface area of land better managed) and a discussion of the social, economic, and environmental effects along the innovation lifecycle.

⁷⁹ **EQ1i** – Did WE4F-supported projects contribute to **increased incomes of smallholder farmers, especially women** farmers and those in the Base of Pyramid?

⁸⁰ Year 1 targets: SSEA 50,000; MENA 15,000. Program LOP target (was 687,500 is 557,500) is balanced; based on aggregation of RIH targets, the latter are lower but based on SWFF the program is expected to reach the LOP target (source: L. McMahan, USAID).

⁸¹ **EQ2** – How much of the measured change reflected in outcome and impact-level WE4F indicators can, in fact, be attributed to the WE4F-supported projects? That is, what portion of the results reported is not explained by the projects examined by the evaluation? (WE4F recognizes that this is a difficult question to answer but wants the evaluator to make the best effort to answer this question).

3.6.1 Innovations' profit, and job creation

At the level of end users, 87% of the end user survey respondents (n=143) think the innovation results (improvements) are sustainable, and 92% of respondents (n=143) indicate they would recommend the innovation to others (1% would not). Such data confirms that end user support will be contributing to sustainability as end users are pleased with the innovation and such attitudes will contribute to growth.⁸²

Profit results against innovations' own targets

The reporting on financial numbers by CFII innovations with year 1 results is uneven; 21 innovations report while others do not. On examination there are various reasons: for some there is ND (no data), others, NYM (not yet measured), yet others, NAWP (target not in the AWP).

Profit results against the WE4F target of >8% EBITDA margin (KPI1)

Table 23 shows CFII innovations' EBITDA margins in year 1, ranked within each region. EBITDA is a widely used measure of core corporate profitability. An accounting term and acronym that represents earnings before interest, taxes, depreciation, and amortization. In WE4F this figure should be calculated and reported at the innovation level.⁸³

Table 23: EBITDA margins of CFII innovations in year 1 (KPI1)

Region	Innovations with Results	year 1 result	met EBITDA threshold
SSEA	Gham Power	11%	Yes
	Oorja Solutions	8%	Yes
	Onergy Solar (Punam Energy)	7%	No
	Promethean	4%	No
	Sumba Solutions	0%	No
	Goat Trust (Nandinandan Breeds and Seeds)	-4%	No
	aQysta	-22%	No
SSEA	(n=7)		29%
MENA	Abu Erdan	46%	Yes
	Biomass SAL	38%	Yes
	Chitosan	23%	Yes
	Schaduf	8%	Yes
	Green Essence	8%	Yes
	Robinson Agri	7%	No
	IRSC	5%	No
	Platform, The	4%	No
	Go Baladi / Hajjar Foods	3%	No
	Baramoda	-1%	No
	Compost Baladi	-4%	No
	SOWIT Maroc	-13%	No
	SuWaCo (Benaa Foundation)	-20%	No
	Alva Tech	-332%	No
MENA	(n=14)		29%
All	(n=21)		29%

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

Table 23 presents the results from 21 innovations in WE4F that report profits (KPI1); 7 in SSEA report and 14 in MENA. The program target is that more than 8% of innovations will pass beyond the threshold (the EBITDA margin of $\geq 8\%$); this 8% target is based on the expectation that only 10% of innovations reach widescale adoption. The table indicates that of the 21 innovations, 7 innovations (33%) reached the threshold of the KPI1 indicator ($\geq 8\%$ EBITDA margin).

⁸² Source: Tables from SSEA end user data.docs (generated from Monkey Survey for end users)

⁸³ For an explanation of how to calculate the EBITDA, see the resource linked here using the Operating Income "Method": (investopedia). EBITDA Margin is equal to the EBITDA divided by gross sales or gross revenue.

In addition, of those 7 successful innovations, 3 are female led (which passes the target of 25%).

From the innovation interviews all 5 respondents on the subject indicate that profitability is expected in 3-5 years, and most respondents report to be (very) confident on financial sustainability⁸⁴.

KPI1 – Fraction of innovations (f,m) making a profit* from marketing WE4F supported innovations⁸⁵

Limited data

KPI1 finding: The KPI1 target (8% of innovations reaching or passing beyond the threshold of the EBITDA margin of >8%) is reached and passed: 33% of innovations have passed the KPI1 threshold, with an EBITDA margin of $\geq 8\%$.

During the interviews, a larger fraction of the innovations reported they were (very) confident of achieving financial sustainability.

KPI1 recommendation: KPI1 reporting needs to be more comprehensively reported with specialized TA support as needed.

Jobs (Gin10) - With financial support and expansion of the innovations, jobs should be added; Gin10 tracks the jobs created by WE4F. Due to the lack of baseline data, job creation is assessed in relation to the targets set by the innovations and the program targets. Table 24 presents the numbers of jobs created, by region, and the proportion of those jobs held by women.

Table 24: Jobs created through Program support, by region (Gin10)

Region	total jobs	female jobs	% of jobs for women
SSEA (n=13)	111	13	12%
MENA (n=15)	101	26	26%
Total (n=28)	212	39	18%

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

There are 28 innovations that have reported the creation of jobs, a total of 212 jobs are reported. Gin10 sets a target of 100 jobs being created through participation in WE4F. Table 24 shows the numbers of jobs created by region. From the 28 innovations reporting there is a program target of 100 jobs created; 212 jobs are reported.

In both regions nearly equal amounts of jobs are created, only 39 (18%) of the 212 jobs are held by women. Nearly all jobs are created by innovations with a water and energy focus (86%). It is worth noting that those innovations with the sole energy focus have a much higher proportion of women; in this focus 46% of jobs are held by women.

From the Dexis innovation survey a total of 221 management jobs and 99 other/part-time jobs were created; 45% of the management jobs are filled by women, and 22% of the other/part-time jobs are filled by women⁸⁶.

Gin10 – Number of new jobs created in WE4F innovation companies⁸⁷

Limited data

Gin10 findings: The job creation target is unlikely to be reached: so far, an average of less than 10 jobs per innovation. The innovations in energy seem to be giving the greatest opportunity to women.

Gin10 recommendation for current phase: Success stories in job creation should be recorded and distributed. Post MTR there should be further discussion of progress towards this target.

⁸⁴ Source: Workspace RIH KII we4f.docx

⁸⁵ baseline 0%, target: 8% of innovations, of which ¼ women-led

*: measured as $\geq 8\%$ EBITDA margin = EBITDA (earnings before interest, tax, depreciation, amortization) / Total Revenue. Earnings = revenue minus expenses (see H6 Data Collection Phase 1 and 2/1. Phase Mid Term Data Collection/5. Administrative M&E Review/WE4F MEL Training August 2022.pptx)

⁸⁶ Source: Dexis innovation survey (Innovation survey 7 11 22.xlsx)

⁸⁷: baseline: 0 jobs, target: 100 jobs/country-innovation For clarity of concept and use, the indicators are reviewed in Annex 9 which presents the indicators as used in this evaluation. In the case of jobs, Gin are found in: source: WE4F Full PIRS_July22.docx and it reads that the target is: '100 jobs', it is assumed this would be 100 across the Program.

3.6.2 Innovations monitoring protection of water, biodiversity

In all SSEA CFI1, only one innovation has a target on water protection in their AWP. Elsewhere there are few targets, some for CFI1 in Iraq and some for CFI2 (source: 81 innovation AWP). This is due to the fact that this indicator is reported at the RIH level with a summary for the region. There is some information that shows that some innovations sell monitoring applications and one self-reported client satisfaction of being enabled to monitor environmental factors (High Atlas Foundation, Morocco)⁸⁸.

KPI8 – Share of innovations that use tools, methods, or processes to monitor the protection of water or biodiversity; Target 80% (this is a RIH summary indicator to be found in RIH reporting)

Limited data

KPI8 finding: The Evaluation has not explored the RIH reports to find about any such tools, other than the EEI which is discussed in 3.6.6.

KPI8 recommendation for current phase: Additional surveys and tracking will be needed to follow up with the KPI8, and the measures protection of water or biodiversity.

3.6.3 GHG emission saved by region

The USAID secretariat provided training to the innovations regarding the use of CLEER to calculate the GHG emissions. (The CLEER Tool is a user-friendly calculator based on internationally accepted methodologies, enabling users to calculate emissions reduced or avoided from clean energy activities.) In feedback from the RIHs they reported the tool is i) relevant; ii) practical/as tool; iii) adaptable to local conditions; iv) reliable in output (perception).

The calculations include the emission savings from change of fuel; it does not include emission-change effects in other parts of the process or value chain. Emissions could rise from the expansion of farm area and fertilizer use, both adding to emissions. Such emissions could be significant while a reduction in transport including fuel transport, could lead to lower emissions.

Table 25 presents the GHG emissions by focus of innovation.

Table 25: GHG emission saved (tCO₂e year 1) by innovation focus (Gin6)

Innovation focus	Total tCO ₂ e	% From women	% From smallholders
Water	-	-	-
Energy	14,056	77%	100%
Water and energy	57,005,454	20%	16%
Total (n=16; 9 SSEA, 7 MENA)	57,019,519	20%	16%

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

The data from the 16 innovations reporting indicates that nearly all emission saving is concentrated in the innovations with a water and energy focus as opposed to water focus and energy focus separately. From the small sample 20% of the energy saved can be attributed to women and only 16% to small holder farmers. These preliminary results show considerable disproportions as MENA accounts for 99.88% of the energy saved.

From this data, the larger farmers in SSEA (49% of the end users, section 3.1.2) did not contribute anything to emission reduction; women (representing 44% of smallholders) here contribute 55% of these savings.

In the MENA region 76% of the end users are poor (quintiles 1 & 2, in section 3.1.2) and 84% of the emission reduction is from the larger farmers (or companies).

At this stage an explanation of these data is difficult; more information is needed on the numbers of innovations that calculated emission savings, their innovation focus, the tool used, and exactly how the calculations were done in each case. In relation to data collection WE4F provided training on

⁸⁸ Source: Dexis innovation survey (Innovation survey 7 11 22.xlsx).

calculating emission saving and referred to the CLEER tool; it would be worthwhile getting feedback from the innovation-users of this tool.

Gin6 – Total GHG emission (tCO₂) saved* by year by end user type** and -gender, through use of WE4F innovations⁸⁹

Limited data

Gin6 findings: Innovations with focus on water & energy are contributing more than those with only energy focus. Additional analysis of the data, innovation by innovation, could reveal trends and patterns in reducing GHG emissions.

Almost all the energy saved is from the MENA region.

Recommendations for current phase: As WE4F moves forward more data over time is needed and should be share on how the GHG savings are achieved by different innovations. Changes in land use need to be assessed, with tools such as the Agriculture, Forestry, Land Use (AFOLU) and the Ex-Ante Carbon-balance Tool (EX-ACT); the latter is developed by FAO to estimate the impact of agriculture and forestry development projects.

3.6.4 Area improved

This Gin45 indicator was added late in the program, therefore just few innovations produced year 1 targets. Only 12 innovations have information reported for year 1. Table 26 shows the area improved, for a limited number of innovations.

Table 26: Area improved (ha) as a result of the CFII innovations (from innovation records)

Region	# of respondents by innovation focus			LOP (ha)	Result year 1 (ha)	% of LOP reached
	water	energy	water & energy			
SSEA (n=6)	1	1	4	84,271	20,064	24.0%
MENA (n=6)	6	1	5	417,693	52,226	12.5%
Total (n=12)	7	2	9	803,724	72,290	8.9%

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

An extrapolation from the results from 12 innovations could indicate that about 488,000 ha would be improved in the first year⁹⁰. Such an extrapolation assumes that 12 innovations are representative of the 81 innovations. In SSEA, comparing the result with innovations' own year target shows a fair result: 24,0% in year 1 gives an indication that the target can be reached, assuming some acceleration. In MENA, interestingly, the LOP is much higher than for SSEA and the current result of 12.5% of the LOP is rather off the mark. Judgement needs to be reserved until there is further examination of the collection of data.

Area of land improved depends on the available land and farm size. Survey data on farm size ranges are used to estimate the average farm size is presented in Table 27.

Table 27: Farm sizes in in the program

Range of farm sizes in the program	calculation area ('average') (ha)	SSEA	MENA
Smallholder I (less than 1 ha)	0.5	89	2
Smallholder II (between 1 and 3 ha)	2	31	5
Smallholder III (between 3 and 5 ha)	4	0	4
Medium (5-100 ha)	25	0	8
Large scale farmer (more than 100 ha)	120	0	1
Average farm size (ha)		0.60	17.25

Source: Cleaned September 20 2022 MENA End User WE4F Evaluation, cleaned tables end user data for SSEA September 19 2022

⁸⁹ baseline: 0 tCO₂; RIH LOP targets: SSEA: 200,000 tCO₂, MENA 2,530 tCO₂; SCA: 3,444 tCO₂. The RIH targets will be reviewed in January (source: L. McMahan, USAID). The program LOP target is 500,000,000 tCO₂

*: standard tool: CLEER (for other tools permission must be given); it provides annual energy and GHG savings for one unit. The semi-annual results are "(result x # of innovation units) % 2" which is understood as: (semi-annual results = x # of innovation units) / 2 (source: WE4F MEL training_August 2022.pptx)

** types: i) smallholder farmers; ii) other farmers; iii) small companies; vi) other companies; v) cooperatives

⁹⁰ ((72,290/12)*81)

Marked differences in the farm size based on the geographic area are observed. There appears a challenge in relation to achieving the aggregated sum of all innovation targets (LOP) due to available land. From calculations based on average farm size, the concern is the land used now is smaller than improved land LOP; this would indicate a considerable addition of farm land. There is not enough data at this stage to draw any firm findings⁹¹.

Gin45 – Area (ha) under improved management practices as a result of WE4F innovations⁹²

Limited data

Gin45 findings: This is a new indicator, and early data are not conclusive. In some regions more progress is made. In SSEA the area improved (about 20,000 ha or 24% of innovations’ target) is reasonable progress, given the small average farm sizes and work in irrigation. In MENA however, the innovations only reach 12.5% of innovations’ target area, however, the target area (LOP) seems overly optimistic. This will be investigated further in the final evaluation.

3.6.5 Socioeconomic and environmental effects along the innovation lifecycle

In the SSEA end user survey (Annex 8, Table 50), end users mention a variety of effects, some positive, some more negative:

- Agro-biodiversity: there were indications that crop varieties increased (22 end users)
- Use of ground water increased (19 end users)

From interviews with innovations there are references to how changing farm practices affected the use of inputs, natural resources and labor; for all three one can find references to increase or decrease, positive or negative effects, and some effects within an innovation can partly cancel each other out (e.g. with biodigesters, women’s labor for collecting fuel and cooking reduces, whereas labor for collection of biodigester feedstock, and production and transport of bio-slurry/compost increases).

Agrobiodiversity and soil health – End user survey respondents say the innovations do not have a negative effect on agrobiodiversity. In SSEA 22 of 129 respondents indicate that the variety of crops on the farm increased, and 2 of 123 indicate that the livestock variety increased. There are similar figures for MENA. There are no reports on negative effects on soil health, while some indicate positive effects (especially in MENA). Based on the survey, the local, off-farm biodiversity is mostly unaffected or positive; water pollution is not identified as an issue⁹³.

There are negatives too. Noteworthy in SSEA, for instance, 19 of 129 respondents indicate that there is an increase in the use of ground- or surface water rather than savings in water and in MENA 1 of 18 respondents also indicates one positive effect while all others report ‘no effect’⁹⁴.

When asked if the cultivated area had increased since using the innovation, 7.8% of the end user respondents confirmed such an increase (n=128). But no respondent (n=143) reported any negative effects on community resources (can be a result of increasing farm areas).

⁹¹ From the survey, we see that in SSEA (n=96) the average area on which the innovation is applied is 0.6 ha (the median is 0.33 ha). Taking the number of end users in SSEA from Table 23. (662,759 end user household members / 6.95 person/hh = 100,570 households), times 0.6 ha/household, makes a total of 60,342 ha on which the innovation could, in theory (as a maximum) be used, assuming that no new end users are added. In MENA the same calculation (90,297 end user household members / 5.6 person/hh = 16,124 households (excluding one with 300 hh members, which must be the large-scale farmer) times 17.25 ha/hh, that makes a total of 278,147 ha on which the innovation could, in theory (as maximum) be used, if no new end users are added. This area is much smaller than the total LOP of 6 innovations only.

⁹²baseline: 0 ha; RIH LOP targets: SSEA: -; MEA: -; SCA 500,000 ha. Program LOP target is 500,000 ha.

NB: the RIH data are insufficient to revise the LOP targets (source: L. McMahan, USAID).

⁹³ Source: Tables from SSEA end user data.docs (generated from Monkey Survey for end users)

⁹⁴ Source: Cleaned September 20 2022 MENA End User WE4F Evaluation,

Environmental compliance – WE4F provides training on environmental aspects, and (presumably in that training) based on USAID’s environmental impact assessment (EIA) tool⁹⁵, WE4F uses Initial Environmental Examination (IEE), and subsequent Environmental Mitigation and Monitoring Plan (EMMP); innovations are required to apply these instruments: a compliance exercise.

Table 28 shows how many innovations have done an IEE and EMMP.

Table 28: CFII innovations with IEEs and EMMPs

Region	total innovations	active innovations*	innovations with IEEs	innovations with EMMPs
SSEA	14	12	11	10
MENA	17	15	13	10
Total	31	27	24	20

*: inactive are those whose grant was terminated as they did not reach their targets

Source: Google Drive WE4F CFII Environmental Documentation

The table shows that nearly all innovations have an IEE, and 20 innovations have an EMMP confirming first level environmental monitoring and mitigation with a possible 20 having both IEE and EMMPs.

IEE and EMMP – The documentation produced with these instruments is comprehensive; it is explored in Annex 13, which provides a detailed table of analysis and an overview of findings from such reporting. These findings are summarized here.

The EEI helps to identify environmental and socioeconomic issues related to their interventions, and the EMMP address some of the issues identified in the IEE.

For example, farm inputs. In several cases some of the effects (e.g., increased use of agrochemicals, or increase waste, or water use) are not managed by the innovation and left as ‘external’. This includes depending on ‘another project’ (to recycle waste) or in the case of agrochemicals, the assumption that toxic effects will be dealt with by a training (by another party) on agrochemicals. It suggests a rather limited responsibility for the provider/innovation to address ‘externalities’.

1. The IEE (EIA) instruments, from innovations’ survey, serve for compliance processes with other funding opportunities⁹⁶
2. The instruments however (feedback from the QoSS) take time and are not always clear; more on this is said in the KII with innovations: “monitoring poverty reduction is difficult,” “not much access to end users, lack of insight into what is happening beyond the point of sale”; “not much monitoring poverty impact, got some framework and used it”.
3. WE4F staff comments in the IEE submitted by innovations show good number of additional questions; some of it suggests that some environmental or socioeconomic effects remain unexplored or underexplored, especially where such effects can be considered ‘externalities’ or are not directly visible or related to the innovation activities
4. The Evaluation also finds that some apparently relevant effects could have and were not addressed in the EMMP.

The IEE data are varied, insufficient to reliably respond to evaluation questions on intended or unintended, positive, or negative effects on environment, climate, water resources, biodiversity, rural communities, and poverty numbers in marginalized groups or rural communities.

The IEE tend to cover only the *immediate direct effects* of the activity, e.g., innovations may assess the activity of biodigesters, briquette making, goat rearing, pumpkin farming, or bamboo furniture making, but not further explore more indirect *positive or negative* effects on, respectively, use of chemical fertilizer, forest management, community water resources (where donkeys compete), water pollution (agrochemical use on riverbed farms) and forest governance, and other land, water and biodiversity related issues. Just some questions that arise.

⁹⁵ Source: WE3F Evaluation shared folder / Data files / Enabling Environment Work / Environmental impact training materials / Monitoring EIA_Tool_Revised_4Dec2017_FINAL.DOCX

⁹⁶ Annual Convening 2022 notes

EQ1l – Innovations impact on marginalized groups? Specifically, numbers in poverty, women. Unintended⁹⁷

Limited stage, limited data; insufficient information on impact on marginalized groups, rural communities (beyond the end user households), apart from jobs created. The unintended effects are not sufficiently identified or monitored with the EMMP.

EQ1l finding: The end user surveys report that the results include some positive impact on marginalized groups (the poor, women, youth, ethnic minorities, rural communities) in terms of income (not in terms of jobs, or availability of community natural resources on which such groups disproportionately depend). The IEE also includes a negative effect (using forest resources governed by an indigenous community).

EQ1m – Environmental effects (water resources, biodiversity)? Intended or unintended⁹⁸

Limited data (same argument as for EQ1l)

EQ1m findings: The data from interviews with innovations and end users, and the IEE documentation, all give a mixed picture of positive and negative (unintended) effects on a variety of environmental issues.

EQ1n – Negative trade-offs of socioeconomic (marginalized groups) and environment impacts⁹⁹

Limited data (same argument as for EQ1l)

EQ1n findings: There was no report of negative feedback from marginalized groups from participating in an innovation but there are not data on effects (also some reported and potentially negatives ones) on marginalized groups not participating. There is no way to assess the importance of any effects.

EQo – TA impacts, via innovators, on environment and climate, management of water resources, biodiversity¹⁰⁰

Limited data

EQo finding: WE4F provided support to monitor water or energy use – that is part of the environmental impact (chapter 5). Aside from that, the IEE is a fair instrument to identify some environmental effects, with a focus on on-site, more immediate effects; negative effects are not necessarily addressed in the plan.

Conclusion on IEE and EEMP - The IEE and EMMP instruments are quite demanding, producing a considerable amount of reporting to assess. In spite of this, IEE and EMMPs completed by innovations and responses from RIH indicate that most mitigations are focused on direct (local) effects, rather than lifecycle effects of innovations; effects further afield are not identified or left aside as ‘externalities’. The EIA compliance approach invites innovations to get compliance done but is not sufficiently compelling innovators to look beyond the direct effects of interventions and technologies and integrate sustainability more holistically in the company’s core business (social value). In addition, IEE duplicate EIA requirements that governments (may or should) have.

EQ1l, EQ1m, EQ1n recommendations for this phase: Further research will be undertaken in this regard in the future as part of the final evaluation. For this, the Evaluation will use the Lifecycle

⁹⁷ **EQ1l:** Have marginalized groups (the poor, women, youth, ethnic minorities, rural communities) been **positively and/or negatively impacted** (through income, employment, water/environmental, energy/environmental) from WE4F supported innovations? Specifically, has WE4F **reduced the number of people in poverty** as a result of supporting WE4F-supported innovations and **has WE4F increased the number of women benefiting from WE4F-supported innovations**. What were the unintended effects of WE4F innovations on marginalized groups?

⁹⁸ **EQ1m** – Were WE4F-supported projects environmentally sustainable (i.e., did they provide positive environmental benefit, or did they do more environmental harm than good)? Did WE4F-supported projects have negative effects on water resources or biodiversity? What intended or unintended impacts did WE4F-supported projects have on other natural resources (e.g., land use changes, battery waste, etc.)?

⁹⁹ **EQ1n:** To what extent are there negative trade-offs observed between WE4F innovations’ impacts on marginalized groups in terms of economic or social results and impacts on environmental sustainability or biodiversity?

¹⁰⁰ **EQo:** To what extent did each RIH provide WE4F innovators with support that improved their positive impacts on environment and climate, including sustainable management of water resources and biodiversity? What were the unintended effects of innovator support provided by RIHs on cross-cutting issues of environmental sustainability/biodiversity?

Assessment (LCA), produce a simplified analysis tool, and assess the effects for a selection of innovations, including simple case studies and a small selection (1-2) of the innovations' end users.

EQo recommendation to initiate in this phase, and fully implement in the extension phase:

Beyond knowing about water and energy efficiency, there is also a need to better assess the other, positive and negative environmental and socioeconomic effects: to understand what changes end user level e.g. in the farming system (the economics, labor, gender issues, soil health), but also the effects further up- and down the innovations' lifecycle: the sourcing of materials from nearby community resources (effects on marginalized groups) or further afield, the effects of by-products or waste on local and ocean waters, for example. Without such understanding one cannot assess what is traded-off. This requires recognition of complexity, and a wider scope (context), to get it right. However, that need has to be balanced with considerations of efficiency. It should not require more resources, preferably less, than what is currently needed for the IEE and EMMP.

USAID and EU have in recent years developed instruments like the Lifecycle Assessment (LCA)¹⁰¹, and the agroecology M&E tool¹⁰², taking a more comprehensive view on environmental effects. This, when adapted and used in a more creative process of innovation and business vision development than in a process of compliance, could be yielding more insights, more useful for the innovations too; it should be geared to identify trade-offs and find win-win solutions that work for the innovation business.

An argument against LCA is that it requires more resources, which must be avoided. The recommendation is to use the framework to produce a much simpler tool. Used for learning purposes, not for compliance, it can be less demanding and more productive.

Suggestion for the current phase: Based on the LCA and/or agroecology tool, it is suggested to develop a simple checklist with some qualitative questions and some scores (quantitative); it must be *short and tailored for an innovation and its context*¹⁰³, then tested in a small group: 1 innovation, 2 end users and 1 WE4F expert or consultant in a role of advocate for other (especially marginalized) stakeholders or affected. The group will use and adapt the list, and work out the effects, producing no more than a flip-chart summary for the project. This can be repeated for 3 different types of innovations. Then the exercise can be evaluated: what is the value of such case studies: i) for the innovation? ii) for project monitoring environmental and socioeconomic effects? Can this replace the IEE and EMPP? Will this increase innovators taking responsibility for where and how the source-materials are obtained, how the innovation affects end users and consumers' health, and what will happen with by-products and end of use? It could help develop more comprehensive service packages, e.g., water pumps with micro-irrigation and pest management. Win-win solutions that inspire governments and donors: innovations to serve end users and public goals.

3.7 Overarching hypotheses

Section 3.7 addresses the three overarching hypotheses (EQHI, HII, HIII).

¹⁰¹ [A practical tool from ATTRA: Live-Cycle Assessment in Africultural Systems](https://images.app.goo.gl/BaXmPi5A9nMBuvqcq6); other sources: <https://images.app.goo.gl/BaXmPi5A9nMBuvqcq6>; <https://images.app.goo.gl/DfiSGkef1Di2ULTt9>; <https://images.app.goo.gl/qMVyvY6PvmgQVsnz9>

¹⁰² [FAO tools to evaluate agroecology performance](https://images.app.goo.gl/qMVyvY6PvmgQVsnz9). In addition, GIZ is also adapting these tools to monitor progress on agroecology Participatory monitoring and evaluation to enable social learning, adoption, and out-scaling of regenerative agriculture

¹⁰³ The ATTRA tool can be used as theoretic framework. The tool could: i) let farmers score the effect on climate change adaptation, using their own criteria (be it in savings in a woodlot, saved time, water security or other); ii) let the group decide what the innovation means for sustainable use of land, ground water; iii) at least ask questions on effects on biodiversity (on- and off-farm, about soils and soil cover, crop diversity, and natural vegetation and fauna), to reflect on; iv) score effects on labor quality and quantity disaggregated for gender; v) ecosystem services (dealing with waste/pollution from agrochemicals including emission, solar panel waste, etc.).

EQc: To what extent were the interventions implemented at each WE4F RIH compatible in achieving impacts related to water efficiency, energy efficiency and use of renewable energies, or food security across the program?

This section was placed to remind us of what will appear in the Final Evaluation and as part of the subject of discussion of the potential longer-term results following the MTR.

3.7.1 Hypothesis I: ...

EQHI: By investing in innovations at the water, energy and agricultural nexus, the pace of development in all three sectors will be substantially faster than if we relied on “traditional” (more sectoral) development programming alone.

3.7.2 Hypothesis II: ...

EQHII: By sourcing technologies and business model innovations that have already achieved early adoption (1,000-10,000 end users), WE4F innovations are much more likely to reach wide scale adoption, transition to scale (10,000-1,000,000 end users) or scale (greater than 1,000,000 end users).

3.7.3 Hypothesis III: ...

EQHIII: By investing in acceleration-oriented TA and IF (including for end users to purchase WE4F innovations), we will substantially increase the likelihood that innovations will have the knowledge, tools, and resources to bring their innovations to scale.

4 MAIN FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The purpose of the WE4F Evaluation is to provide the key stakeholders with key conclusions in relation to WE4F's contribution to increased sustainable food production along value chains, i.e., with reduced negative impact on natural resources (soil, water), biodiversity and reduced GHG emission (IM3)¹⁰⁴ as well as increased income for poor men and women in rural and urban areas (IM4). In Table 29 lessons learned from the MTR.

¹⁰⁴ The Evaluation Team's understanding of more sustainable agricultural production is inclusive of all effects, as this is also emphasized by the Founding Partners (re. comments on biodiversity and inclusion of poor / marginalized groups).

Table 29: Main findings, conclusions and recommendations

EQ key words	Findings and conclusions	Recommendations for current phase	For the extension
Relevance (section 3.1)			
EQ1a demand and ownership	EQ1a: Local ownership indicates one degree of relevance and is evident in that most innovation companies are incorporated in participating countries; they may also operate in other adjoining countries in the region. However, half of the innovations do not reach their own year 1 target for end user numbers. Continued relevance will be demonstrated with rising numbers of end users into the future. Since in SSEA 94% of end users are in the lower income quintiles (Q1 and Q2), and in MENA three quarter of the end users are found in this category of poorer end users this is confirmation that WE4F, through the innovations, are reaching the base of the pyramid. While in SSEA there is evidence of a relatively high level of women's participation; this is not found in the MENA region and needs to be addressed.	EQ1a: WE4F needs to strengthen the enabling environment to address the barriers that women face both as innovations and as end users. This is being achieved with the innovations and financial services, but could also drive other stakeholders, e.g., government, to demonstrate that engaging more women and make them benefit, it requires them to be given equal freedoms and equal wages (on wages, this can be addressed in innovation companies).	
EQ1b addressing key needs of marginalized groups	EQ1b: In terms of key needs of end users, there is evidence of 67% of innovations make products that are relevant to their end users and reliant on client feedback. Overall, the increasing numbers of end users are evidence that that the innovations respond to key needs; with an increasing demand for most of the innovations, the innovations are found to be relevant to end users including marginalized groups.	EQ1b: WE4F needs a promotion strategy to show more women end users can succeed. Currently 26% of end users are women, rising to 29% among the poorer. The prioritization of food security may draw more women into production. Consideration should also be given to technology of which ergonomics are adapted to women (smaller in size), and technology benefits for women, e.g., biodigesters (a heavy investment that is often paid for by men) benefit women in terms of health and cooking-fuel time saving, but considering the time spent on charging the biodigester (needs a lot of water) women could also benefit from bio-slurry, for food crops.	
EQc interventions impact on environment a.o.	EQc: In this first stage finding of the evaluation, the participation of the different countries as well as the well spread balance of the innovation focus areas shows broad relevance. To date, the broad relevance of the WE4F Program is evidenced through its country participation which includes 9 countries in the SSEA region, 10 in the MENA region and 7 in the SCA region. In interviews with RIHs and innovations, the focus areas are regarded as highly relevant to these regions and the impacts are assessed in sections below	Research into successes in raising participation of marginalized groups (including women) should be undertaken to identify innovations (in terms of costs, sizes, quantities) which have proven to be most successful in meeting the needs of these groups.	
EQd enabling env. for marginalized groups	EQd: Both RIHs focus on the extension of financial services and some strategies could enable more women to benefit more from the innovations. The results in the MENA region show that much more needs to be done to remove barriers to women participation.		

EQ key words	Findings and conclusions	Recommendations for current phase	For the extension
(Program level)	Structured support to innovations on the inclusion of women could help address this challenge. Conclusion: WE4F is seen as highly relevant to the needs of the regions and countries in which it operates; it builds on existing institutions and the rising number of end users shows that the innovations are meeting smallholders' interests. The challenges relate to scaling and greater participation by women.		
Coherence (section 3.2)			
EQ1c contributing towards or contradict SDG	EQ1c: Overall there is internal cohesion between the key focus areas of innovations and the strategic objectives of WE4F. There is real interest expressed in interaction between innovations themselves within WE4F. WE4F provides avenues to reach particular SDGs in relation to socioeconomic, environmental, biodiversity and lowering of emissions in agriculture and broadly towards eliminating poverty and hunger. There are, however, some contradictory aspects of SDG which may be 'off-site' i.e., elsewhere in the innovation lifecycle / food commodity value chain, affecting others than the end users including marginalized groups. Conclusion: WE4F is broadly aligned in coherence with a number of SDG and focuses in on sustainable agriculture, a key factor in developing regions. Such broad alignment, however, may not lead to effective coordination with national policies to achieve these SDG and coordination may need to be explicit.	EQ1c: Since SDGs are integrated into country plans the RIHs could initiate discussions with policy makers and civil society to achieve mutual coordination and support for innovations. Attention should be given to SDG (SDG2: Zero Hunger, SDG1: No Poverty, SDG15: Life on Land, SDG5: Gender Equality, SDG10: Reduced Inequality, SDG13: Climate Action, SDG9: Industry, Innovation, and Infrastructure). RIH interventions could, at a national and regional level, make the case to governments, by showing how innovations help advance particular SDG, and how governments can create a more enabling environment for such innovations as these help to attain SDGs.	
Effectiveness (section 3.3)			
OC1, OC2, OC3 innovations' capacity PART 1: QoS, and all 3: TA, IF, EE Indicator QoS: score	The QoS score average follows a fairly similar pattern in all three hubs: near or above the 80% mark for TA and IF, and below 70% on the subject of EE. Pre-award support: all respondents found that the process positively impacted their organization's administrative and financial systems. Technical Assistance (TA) is receiving very good scores in all three regions (in SSEA, MENA and SCA resp. 8.1, 8.2 and 8.6); it is mostly used for business planning, -financing and marketing. Enabling Environment (EE) there is a critical need for improving the enabling environment, considering the large number of comments, from all three regions, that point to a wide variety of barriers, including many references to registration and	EQ1d: • Use trainers that have experience in adult learning so that sessions make more use of participants' own expertise, especially on the subject of removing bureaucratic hurdles; such a training could help innovations to produce their action plan to advocate, to address bureaucracy. • Collect data from trainees, more systematically, to evaluate training: participants, facilitation quality, content relevance and quality, usefulness.	

EQ key words	Findings and conclusions	Recommendations for current phase	For the extension
EQb TA, IF, EE differences EQ1d overcoming organizational capacity, barriers EQa TA deemed useful by innovations EQn support improved ability to more effectively target end users	environmental compliance (“bureaucracy”), import and export barriers, lack of finance, and political instability Monitoring & Evaluation: readiness for data collection is good, but to an extent; it is not that easy. EQ1d and EQa: The TA appears to help improve innovations’ capacity on organizational/operational matters and innovations find it useful. Training on technology and input access is found less useful. The same for EE: removal of bureaucratic hurdles¹. EQn: Both SSEA and MENA RIH provided training on the ‘Base of the Pyramid.’ QoSS shows generally high satisfaction with the TA and IF services; for EE services there is no dissatisfaction but the marks for understanding needs are lower	- Continue the ad hoc support to the innovations, this support could also be organized if many innovations need the same support a TA could be developed to provide it. EE is important and needs to be improved. Innovations’ own activity in policy advocacy (, through BMO) could be supported as such organization better understanding the local context, e.g., lobby together for biomass-related regulations. Services in general: use more local TA especially for EE work EQn: The Evaluation Team will look into training materials, in the next phase, with a focus on how gender is mainstreamed in RIH country strategies/plans, in work on Enabling Environment, Investment Facilitation and Technical Assistance: - introducing and understanding of the gender context (e.g., by using data from relevant indexes for the region or country), highlighting gender gaps, e.g. in business investment and financing, technology (design), input access (check the gender yield gap), and in bureaucracy, but also including “cultural barriers” in the understanding of the context, to find solutions that address these, e.g., innovations can adapt training materials, location, timing and content to women - training methodology (adult learning, using women’s expertise e.g., on dealing with barriers) - gender mainstreaming business plan, on job and pay equality, and tailoring innovations to needs of more marginalised groups including women (and the business case to do this).	Pre-award service: there is likely a trade-off between the choice of (often more established and larger) innovations that are capable to grow and contribute relatively much to WE4F targets, and companies that are smaller and – even as they grow – contribute little to WE4F targets; consider two different entry systems: tailored for smaller and larger companies

EQ key words	Findings and conclusions	Recommendations for current phase	For the extension
PART II: funding KPI9 external investment Gin33 co-funding EQ1p balance between public engagement and private support Gin41 using fin. guarantee instruments Gin20 # external partnerships EQ1h PPP	KPI9: With 19 out of 81 innovations having mobilized 8.6 million USD external investment. EQp: TA and access to finance link not yet assessed. Gin33: Innovations provide 153% of the funds disbursed by WE4F so far (program disbursement is about halfway of the funds committed). EQ1p: While the innovations are mainly companies, they have a public orientation, but one tied to market opportunities to ensure their financial sustainability. Gin40 & Gin41: From the survey it is clear that many contacts were made with investors, and a beginning is made with data collection to link this to funding mobilized. Only a few innovations used a financial guarantee mechanism, but most innovations appreciate WE4F investment facilitation activities, and some already note a positive effect. Gin20: Partnering appears at an early stage, but progress is being made, and 91 partnerships have been created. EQ1h: From the KIIs and the innovation survey there is evidence that innovations know what a PPP approach is, but they have yet to build this into their partnering and financial strategy.		
PART III: EE EQd enabling environment work compatible with impact on marginalized groups EQm enabling environment work deemed useful Gin28 end user financing	EQd: Both RIHs focus the enabling environment work on financial services. On the subject of financial services, some ideas they have (when applied) will or are likely enable women to benefit more from the innovations. However, the results in the MENA region show that much more needs to be done to remove barriers for women. EQm: Some survey feedback suggests that some initiatives in the environment were found helpful e.g., where donors step in to raise the issue of bureaucratic hurdles. Gin28: The number of poorer end users accessing end user financing is at this stage still very low. Financial support may be built into pricing or credit, but the low-level direct end user financing is a weakness in WE4F.	EQd: Several recommendations are already made in section 3.3.1 with regard to understanding the gender context and adapt any training to this. The same would apply to other activities (beyond training); understanding the gender context should be integrated at the conception of all activities.	
PART IV: effect on the innovations business New indicator: innovations' end user growth	New indicator: Overall, half of the innovations meet or surpass their target; that is more than the expected 40% (new indicator).	Continue with reflection on end user growth models could be useful, especially for new innovations, to opt for a relevant growth model and realistic targets and document and share discussions held on these topics during the monthly calls with innovators	

EQ key words	Findings and conclusions	Recommendations for current phase	For the extension
Gin4 gross sales EQ10 – Financial and social sustainability of the organizations supporting the innovation?	Gin4: The gross sales year 1 result is as yet incomplete; also, sales may have been reduced due to COVID-19 and not provide a basis for reliable projection. Based on available data, it is possible that the LOP target can be met. EQ10: There seem to be few alternative sources of support or finance at this stage, apart from the (successful) mobilization of financial support with the help of WE4F.		
Efficiency (section 3.4)			
PART I: Program design EQi effort & resources balance PART II: Partners' involvement EQg founding partners – RIH lessons, alignment PART III: MEL system EQ1k resources used to max. impact on env. & biodiversity	EQi: From limited data available (presented in 3.3.2, re. Gin33), it appears that innovations' co-funding is in good proportion to (153% of) what WE4F has disbursed so far. Conclusion: WE4F has shown particularly effective in assisting innovations to raise external funds multiple times larger than the WE4F grant; on this it compares favorably with other programs. The RIH are reported by innovations to be efficient (save recommendations on streamlining pre-award, MEL) WE4F is efficient as a program in achieving the greatest impact in the deployment of relatively limited resources available and secondly in terms of the costs of fund management in comparison with other Challenge Funds. EQg: There are reports from RIH of synergies between Program goals and donor country initiatives and other openings; there is opportunity to expand on such experience. Conclusion: Founding partners have assisted efficiency by assisting on specific issues of enabling environment EQ1k: The MEL system, where it applies to innovations' impact on environment, is still in development. Training has been provided on monitoring environmental impact on water, energy, emission, and environmental monitoring tools are introduced and used Conclusion: The MEL system produces an impressive amount of quantitative and qualitative data which provides an overview of the whole leading to greater efficiencies; it can improve indicator definitions (incl. targets) and streamlining data collection.	EQg: In making a full assessment of the various efficiencies of WE4F there should be continuing data exchange between M&E and the evaluation. MEL system: 1.improve the PMEP document, including the addition of navigation/headings, and an explanation on how targets are set at different levels (innovation level, hub level, program level) and how targets may be changed, or indicator standards and methodology refined. 2.update and clarify indicators. 3.if not already intended (the Evaluation Team is yet to verify), it is recommended that (summaries of) relevant MEL information be shared and reflected on in bootcamps, to reflect on; this can yield valuable feedback for WE4Fme; this can include a reflection on the next point: 4.Monitoring by innovations for WE4F could be improved, in terms of making indicators clearer (do all innovations understand the indicators, e.g., EBITDA and carbon emission measuring), and use them in the same way, making monitoring relevant for innovations themselves, making monitoring leaner, more efficient if possible	MEL system: • follow-up on feedback from bootcamps on how M&E is done • more engagement when developing and setting targets. As WE4F is extended there should be guidelines developed to help the innovations set targets (not just the end user targets discussed in this section) • assistance for weaker performing innovations, with possibly more careful target setting

EQ key words	Findings and conclusions	Recommendations for current phase	For the extension
Impact baseline (section 3.5)			
IM1 KPI2 # end users	KPI2: The end user targets set at the RIH level are being met and passed by large margins. There is however considerable variance between innovations.	Continued reflection on target setting to be considered to ensure targets set by the innovations are realistic (neither too high nor too low) especially when new innovations join WE4F.	Further reflection and discussion with innovations in setting targets (end user and all targets).
IM2 Using the innovation			
IM3 KPI3 food produced KPI4 food processed	KPI3: Production targets are being met but from larger scale farmers in the water and energy sector. The target was passed by more than tenfold. Medium-large scale farms are responsible for 69% of the food produced. KPI4: At the time of the MTR there has been more than 2000-ton food processed by only 3 innovations. Currently is it not clear if this is an issue regarding reporting or it not being a focus of the innovations that are part of the project. Despite the enormous growth of food processing in the food supply chain, this is a relatively undeveloped aspect of food production and distribution among the innovations.	KPI3: WE4F should continue to focus smaller farmers in SSEA The reasons for low levels of food processing should be discussed to understand the challenges involved. Particular attention must be made to strengthening food production at the base of the pyramid, with smallholder farmers.	As WE4F moves forward the data on food production needs to be rigorously examined. Further discussion is needed regarding food processed due to the marketing of food.
EQ1e water efficiency, -access, -targets & other effects KPI6 water efficiency, -access	EQ1e: There is considerable evidence of increased water availability and accessibility and through use of solar water pumps. Associated is concern of overuse of water resources and falling water tables. Water savings are not yet being achieved on any scale. From end-user surveys most respondents reported no change, or increased volumes of water used while a small minority mentioned savings being achieved. KPI6: The data are insufficient, to fully understand the water savings of the innovations in two in terms innovation reporting and clarification on how water is saved by the innovation.	EQ1e – WE4F needs to give closer and systematic attention to the issue of water savings and the challenge of water overuse and falling water tables. The International Water Management Institute (IWMI) is setting procedures for groundwater responsive solar irrigation. ²	

EQ key words	Findings and conclusions	Recommendations for current phase	For the extension
EQ1f energy efficiency, -use, -targets & other effects KPI5 energy saving KPI5 energy saved	EQ1f: Most innovations passed their year 1 targets even as for all innovations there is evidence of energy savings. Energy Transition: In SSEA 69% end users changed their energy source; in MENA no energy source changes were report (which was a move away from fossil fuels) There is unevenness among innovations and there is greater savings in SSEA for smallholder farmers and in MENA for medium-large farmers. At this stage there are no reported unintended consequences. KPI5: From a limited number of innovations a considerable amount of energy is saved at the small holder farms despite this total energy saved is 68% of the LOP target. Progress is being made in energy savings, but targets are not being met in the case 5 of 13 innovations for which data is available.	EQ1f: This is a major achievement, and the success of this intervention should be written up. Success stories from innovations with significant savings should be written and circulated.	There should be more tracking of energy transition from fossil fuels to renewable sources
EQ1g agricultural productivity	EQ1g: A proportion of end users reported some impact on productivity and identified what change in production methods led to it. From the end user surveys improved yields were reported due to ‘reducing reliance on rain’, ‘better water management/irrigation’ and better production practices. Without quantitative yield data, productivity cannot be quantified.	EQ1g: to initiate in this phase, and fully implement in the next phase: Apart from collecting production data (useful, and necessary for KPI3), there is a need to focus at farm level, and from <i>a small selection of end users</i> (farms) to collect specific data on crop yields; changes in crop yields need consistent examination over time to identify patterns and causes of change. Doing this, a distinction can be made between farms from end users at the base of the pyramid and larger farms; this could then also be compared with available gender yield gap data (synergy).	
IM4 EQ1i incomes of smallholder & women farmers KPI7 income EQ2 attribution to WE4F, how much	EQ1i: If only looking at the Dexis end user survey data, it can be found that nearly all end users report an income increase, and this proportion is as high or higher for women. KPI7: There is some contradiction and uncertainty in what the data on income increase represent. End users surveyed by Dexis provide a more positive picture than the data from WE4F – and the latter may be incomplete. From the end user survey, 88.8% of the respondents shared their income increased as a result of the innovation a high level of end users reported women’s income also increased. From the M&E data 7% of the total end users that have experienced an increase in income. But at this time None of the end users surveyed were able to secure or receive financing to buy the innovation even though there were some beneficiaries to financing in the M&E data EQ2: Since WE4F provides only a proportion of the funds employed by innovations WE4F inputs are regarded as contributions towards results. Further data collection is needed to assess the relative contributions of various donors and partnerships.	Further end user surveys are needed to confirm increases in income and the reasons for such changes.	

EQ key words	Findings and conclusions	Recommendations for current phase	For the extension
Sustainability (section 3.6)			
KPI1 profit ($\geq 8\%$ EBITDA) for $>8\%$ of innovations Gin10 number of new jobs KPI8 tools to monitor environ protection Gin6 total GHG emission saved per year Gin45 % innovations use methods to monitor water, biodiversity EQ11 positive/negative impacts and poverty EQ1m negative feedback marginalized	KPI1: The KPI1 target is reached: 33% of innovations (more than the target of 8% of innovations) have passed the KPI1 threshold, with an EBITDA margin of $>8\%$. In interviews, a larger fraction of respondents reported to be (very) confident of financial sustainability. Gin10: The job creation target is unlikely to be reached: so far, an average of less than 10 jobs per innovation. The innovations in energy seem to be giving the greatest opportunity to women. KPI8: not explored (other than IEE, see below). Gin6: It appears that smallholder farmers and women are disproportionally contributing to emission saving. Innovations with focus on water & energy are contributing more than those with only energy focus. Additional analysis of the data, innovation by innovation, could reveal trends and patterns in reducing GHG emissions. Almost all the energy saved is from the MENA region. Gin45: In SSEA the area improved (about 20,000 ha or 24% of innovations' target) is reasonable progress, given the small average farm sizes and work in irrigation. In MENA however, the innovations only reach 12.5% of innovations' target area; the target area (LOP) seems overly optimistic. EQ11: The end user surveys report that the results include some positive impact on marginalized groups (the poor, women, youth, ethnic minorities, rural communities) in terms of income (not in terms of jobs, or availability of community natural resources on which such groups disproportionally depend). The IEE also includes a negative effect (using forest resources governed by an indigenous community). EQm: The data from interviews with innovations and end users, and the IEE documentation, all give a mixed picture of positive and negative (unintended) effects on a variety of environmental issues.	KPI1 reporting needs to be more comprehensively reported with specialized TA support as needed. Gin10: Success stories in job creation should be recorded and distributed. KPI8: Additional surveys and tracking will be needed to follow up with KPI8 (measures of protection of water or biodiversity) As WE4F moves forward more data over time is needed and should be share on how the GHG savings are achieved by different innovations. Changes in land use need to be assessed. Gin6: Further analysis of the data, innovation by innovation, could reveal trends and patterns in reducing GHG emissions. EQ11, EQ1m, EQ1n: Further research will be undertaken in this regard in the future as part of the final evaluation. For this, the Evaluation will use the Lifecycle Assessment (LCA), produce a simplified analysis tool, and assess the effects for a selection of innovations, including simple case studies and a small selection (1-2) of the innovations' end users.	Gin10: Further discussion of progress towards this target

EQ key words	Findings and conclusions	Recommendations for current phase	For the extension
EQ1n negative trade-offs socio-economic+ EQo TA impacts, via innovators, on environment and climate, WRM, biodiversity	EQ1n: There was no report of negative feedback from marginalized groups from participating in an innovation but there are not data on effects (also some reported and potentially negatives ones) on marginalized groups not participating. There is no way to assess the importance of any effects. EQo: WE4F provided support to monitor water or energy use – that is part of the environmental impact (chapter 5). Aside from that, the IEE is a fair instrument to identify some environmental effects, with a focus on on-site, more immediate effects; negative effects are not necessarily addressed in the plan. Conclusion on IEE and EEMP – The IEE and EMMP instruments are quite demanding, producing a considerable amount of reporting to assess. In spite of this, IEE and EMMPs completed by innovations and responses from RIH indicate that most mitigations are focused on direct (local) effects, rather than lifecycle effects of innovations; effects further afield are not identified or left aside as ‘externalities’. The EIA compliance approach invites innovations to get compliance done but is not sufficiently compelling innovators to look beyond the direct effects of interventions and technologies and integrate sustainability more holistically in the company’s core business (social value). In addition, IEE duplicate EIA requirements that governments (may or should) have.	EQo: Based on the LCA and/or agroecology tool, it is suggested to develop a simple checklist with some qualitative questions and some scores (quantitative); it must be <i>short and tailored for an innovation and its context</i>, then tested in a small group: 1 innovation, 2 end users and 1 WE4F expert or consultant in a role of advocate for other (especially marginalized) stakeholders or affected. The group will use and adapt the list, and work out the effects, producing no more than a flip-chart summary for the project. This can be repeated for 3 different types of innovations. Then the exercise can be evaluated: what is the value of such case studies: i) for the innovation? ii) for project monitoring environmental and socioeconomic effects? Can this replace the IEE and EMPP? It could help develop more comprehensive service packages, e.g., water pumps with micro-irrigation and pest management. Win-win solutions that inspire governments and donors: innovations to serve end users and public goals.	
Overarching hypotheses (section 3.7)			
	To be examined in the Final Evaluation Report.		

ANNEX 1: THE EVALUATION SOW

SECTION C – DESCRIPTION/SPECIFICATION/STATEMENT OF WORK

C.1 Introduction

Water and Energy for Food: A Grand Challenge for Development (WE4F) is a multi-donor funding program that aims to increase the sustainability of agricultural food value chains and address environmental and climate adaptation in developing countries and emerging markets by expanding the sustainable scale of small and growing enterprises (SGEs) that impact the sectors of food and water, food and energy, or all three sectors at the nexus (food, water, energy) – with a particular focus on the poor and women. As stated in the partner program approval document of WE4F, a mid-term review and final evaluation is required of the Water and Energy for Food: Grand Challenge Development. The mid-term and final performance/pseudo-impact evaluation should provide an overall assessment of WE4F that not only makes transparent the challenges met and results achieved, but also contributes to content-related and systematic learning by answering questions of “how” and “why” the interventions of WE4F were successful or were met with challenges. While pursuing this objective, both the mid-term and final performance/pseudo impact evaluations should be designed, structured, and implemented to assess the WE4F program and its interventions in alignment with OECD-DAC evaluation criteria including relevance, coherence, effectiveness, efficiency, impact, and sustainability.

C.2 Background

Four founding partners (FPs) have embarked on the Water and Energy for Food: A Grand Challenge for Development (WE4F) program as a joint international initiative including: the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), Sweden through the Swedish International Development Cooperation Agency (Sida), the Ministry of Foreign Affairs of the Kingdom of the Netherlands (MFA-NL), and the United States Agency for International Development (USAID). WE4F is an innovation and acceleration initiative that seeks to build on the efforts and achievements of the Securing Water for Food: Grand Challenge Development (WE4F) and the Powering Agriculture: Energy Grand Challenge for Development (PAEGC). WE4F and PAEGC aimed to source, select, and accelerate innovations that would enable the production of more food with less water or less energy.

Launched in 2012, PAEGC and WE4F aimed to address existing trends and challenges in the water-energy-food nexus through the scaling of scientific and technological innovations which aim to improve energy and water efficiency in the agricultural sector, while simultaneously enhancing food production and increasing employment and income opportunities for women and men living in poverty. PAEGC and WE4F pursued this goal by focusing on the provision of traditional grants, technical assistance, and financed guarantees which supported the development and scaling of these innovations.

PAEGC was a partnership launched by USAID, the Government of Sweden (Sida), the Government of Germany (BMZ), Duke Energy Corporation and the United States OPIC with the overall goal “to support new and sustainable approaches to accelerate the development and deployment of clean energy solutions for increasing agriculture productivity and/or value in developing countries”. Its objective was to scale up innovations and accelerate the pace at which renewable energy is supplied to the agriculture sector in developing countries. Through two calls for innovations, 24 innovators¹ and their clean energy solutions were selected and supported through the PAEGC East Africa regional innovation hub in Nairobi, Kenya, providing the basis for the use of additional regional innovation hubs in the WE4F.

Since 2013, USAID, Sweden through Sida, the Ministry of Foreign Affairs of the Kingdom of the Netherlands supported innovators through WE4F which identified and accelerated water related science and technology innovations and market-driven approaches to help agricultural producers. Since then, WE4F's 80 innovators have helped save or reallocate more than 19 billion liters of water to the food value chain. One key success factor has been a careful innovator selection process, supported by tailored technical assistance to innovators by local consultants (local vendor system).

The Water and Energy for Food: A Grand Challenge for Development seeks to build on the lessons learned from PAEGC and WE4F by adapting their approaches and creating a new model comprising: 1) adaptations to PAEGC and WE4F's organizational structure and 2) an expansion of innovation support and services beyond that of PAEGC and WE4F.

This new model reflects adaptations to the organizational approaches of PAEGC and WE4F by implementing WE4F interventions through regional innovation hubs. The WE4F Founding Partners recognize the constraints that exist and prevent the high volume of investments which are made in the private sector from reaching the many innovations in the market seeking wide-scale adoption. WE4F aims to have at least 8% of funded innovators, of which at least one-quarter are led by women, successfully market their WE4F supported innovations to reach wide-scale adoption (greater than 100,000 customers). In order to do so, USAID and BMZ (the lead program implementers) have, together with the other WE4F Founding Partners, developed Regional Innovation Hubs (RIHs) to provide a number of services to help innovators accelerate their progress in order to reach wider-scale adoption. This includes three RIHs which will be contracted to third parties and overseen by USAID and two RIHs managed directly by BMZ.

Additionally, this new model reflects an expansion of program interventions and engagement with innovations which includes new areas of innovation support such as: financial brokering including end-user financing, enabling environment support, and capacity development. All activities which are implemented at RIHs fall within 6 pillars of hub activity including: grants management, investment facilitation, technical assistance, enabling environment work, capacity development, and end-user financing. Additionally, the program remains committed to incorporating cross-cutting issues of gender, poverty, local ownership, and environment/climate/biodiversity into the programming and implementation of these activities.

At each RIH, the Regional Advisory Committee (RAC) 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. WE4F's cross-cutting issues are also prioritized during these processes by assessing applicants' proposed impact on gender, local poverty, and environmental sustainability or biodiversity. Additionally, strategies aligned with these cross-cutting issues are incorporated into innovators' scaling strategies and assessed throughout the life of the program.

The goal of WE4F is to expand the sustainable scale of small and growing enterprises (SGEs) that impact the sectors of food and water, food and energy, or all three sectors at the nexus (food, water, energy) to increase the sustainability of agricultural food value chains and address environmental issues and climate change adaptation in developing countries and emerging markets. WE4F innovators continue to scale innovations which are designed to support the program's overall goal. The focus areas of innovations supported by WE4F:

- water and food: improving food productivity, food value chain sustainability, and climate change adaptation through the efficient use of water resources.
- energy and food: improving food productivity, food value chain sustainability, and climate change adaptation through the efficient use of energy resources and renewable energy.
- water, energy and food: improving both water and energy efficiency including the use of renewable energy along the food value chain to improve food productivity, food value chain sustainability, and climate change adaptation

The innovations in these areas may include improved energy or water-efficient technologies for: aggregation, storage, farm inputs, farm production and mechanization, residential and commercial energy production, value-added processing, water capture/storage, water reuse/efficiency, or water salinity. WE4F also seeks to support business and financial innovations that enable the increased adoption and dissemination of associated technology solutions.

The WE4F Founding Partners (USAID, Sida, BMZ and MFA-NL) share the common goal of advancing international development through improved access to sustainable water and energy 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 not only avoid negative effects on water resources, biodiversity, and other environmental harms but also strive to have positive impacts on these central areas of the water-energy-food nexus.

A. Description of the Problem, Development Hypothesis(es), and Theory of Change

Through WE4F, the Founding Partners hope to source and accelerate high potential solutions that will have multiplier effects at various levels of a country's economy and food value chain. The following three hypotheses are both meaningful and practical measurements of WE4F's development impact potential:

1. By investing in innovations at the water, energy and agricultural nexus, the pace of development in all three sectors will be substantially faster than if we relied on "traditional" development programming alone. The basis for this hypothesis is that innovation plays key roles in creating economic growth opportunities through entrepreneurship, investment, research and development, partnership, technology commercialization, and widespread technological adoption – including adoption by the poor. Adoption of WE4F innovations will either have direct economic benefit on end users by increasing efficiency and/or profitability, or indirect economic benefit by improving food security writ large. To explore this, WE4F intends to utilize some key metrics (e.g., USD spent per beneficiary), comparing WE4F to "traditional" development programming.
2. By sourcing technologies and business model innovators that have already achieved early adoption (1,000-10,000 end users), WE4F innovations are much more likely to reach wide scale adoption {transition to scale (10,000-1,000,000 end users) or scale (greater than 1,000,000 end users)}. The basis for this hypothesis is that a sufficiently large number of proven technologies already exist, and many are already on the market. These technologies require adaptation and/or validation for local markets and/or in-depth support for wide scale growth and distribution. Early-stage innovations require a higher level of support, testing, and – most importantly – time. Based on our analysis, WE4F investments are best placed at least at the early adoption stage. In addition, a lesson learned from previous Grand Challenges, only 10-20% of innovations supported from previous Grand Challenges have strong potential for wide-scale adoption, even after having been taken through a rigorous evaluation process. Using this lesson learned, WE4F has designed a milestone-based tiered grant structure that will be used in select RIH and will only continue to fund the most promising innovations over time. These milestones are related to business scaling and financial achievements as well as objectives related to WE4F's cross-cutting issues including gender, poverty, and the environment/climate/biodiversity. Other RIHs will not follow the milestone-funding structure and the evaluation can compare similarities and differences in both innovator growth and end-user impacts. We expect that the selected external evaluator will administer a survey with 5 groups (WE4F innovators that received more than 18 months of milestone-based funding; WE4F innovators that received between 1 year to 18 months of milestone-based funding; WE4F innovators that received more than 18 months of non-milestone based funding; WE4F innovators that received between 1 year to 18 months of non-milestone based funding; WE4F non-innovators²) to help determine whether or not there is evidence to support this hypothesis.

3. By investing in acceleration-oriented technical assistance and investment facilitation (including for end users to purchase WE4F innovations), we will substantially increase the likelihood that innovators will have the knowledge, tools, and resources to bring their innovations to scale. The basis for this hypothesis is that grant financing alone will not be enough to bring any innovation to scale. Partnerships with the private sector, government, NGOs (for distribution), and others are necessary to (among other things) accelerate business-to-business linkages, catalyze investment, improve distribution, and ultimately stimulate adoption. We expect that the selected external evaluator will administer a survey with 3 groups (WE4F innovators at USAID RIHs that received 2+ years of TA; WE4F innovators that received 1 year or 18 months of TA; non-WE4F innovators that received TA from other non-WE4F actors) to help determine whether or not there is evidence to support this hypothesis.

B. Summary Strategy/Project/Activity/Intervention to be evaluated

The mid-term and final evaluations focus on evaluating WE4F at two levels: the WE4F program level and the WE4F-support innovation level. Overall, the WE4F program will in the end have supported at least 100 innovations in 40 eligible OECD/DAC 1-4 countries. Expected outcomes of WE4F:

- 1) At least 8 proposals/innovations that improve water and/or energy efficiency including the use of renewable energy in the food chain have been adopted, brought to scale and/or commercialized by businesses in least 8 developing and low-to-middle income countries.
- 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 (25% resource efficiency improvement by the program innovations as compared to standard practice in the implementation countries).
- 4) More food has been produced and/or processed with more efficient or renewable energy (12.5% resource efficiency improvement by the program innovations as compared to standard practice in the implementation countries).
- 5) This program will also contribute to increased water-related and/or energy-related adaptation to climate change.
- 6) Impact indicators include (see WE4F PMEP for specific program indicators and indicator targets):
 - a) Share of supported innovators that successfully marketed their climate friendly, energy and/or water efficient innovations with profit.
 - b) Number of smallholder farmers and other end users using energy or water efficient WE4F innovations in their activities
 - c) Total mass of food produced as a result of WE4F innovations
 - d) Total mass of food processed as a result of WE4F innovations
 - e) Total amount of energy saved in the food value chain as a result of the use of WE4F innovations
 - f) Total volume of water consumption reduction in the food value chain as a result of the use of WE4F innovations
 - g) Number of smallholder farmers and other end users that experience an increase in income
 - h) Share of innovators that use tools, methods or processes to monitor the protection of water and/or biodiversity
 - i) Value of investment in US Dollars that WE4F innovators have mobilized from external sources

- j) Number of strategies, guidelines, or projects of international, regional or local organizations adopting and disseminating lessons learned from WE4F publications, events, or presentations

WE4F will provide the external evaluator with all awardees, RIH, and Secretariat data as well as overall program data that were collected on a semi-annual and annual basis. The WE4F program directly feeds into the overarching Development, Democracy, and Innovation (DDI) Monitoring, Evaluation, and Learning (MEL) Framework as well as the BMZ MEL Framework. WE4F's MEL processes enable timely and consistent collection of comparable performance data in order to make informed program management decisions. In line with the GCD MEL Operational Plan, the WE4F PMEP fully incorporates the DDI Results Framework and tracks and reports on indicators at three levels: 1) the meta-level (enabling analysis across GCDs); 2) the program-level (WE4F level); and 3) awardee-level.

To facilitate awardee reporting, each awardee works with the relevant RIH on overall compliance, data collection, quality control, and to facilitate the collection of results data from innovators and entry of validated results into the Salesforce online platform. In some cases, the RIH conducts field visits to verify awardee achievements and assist with addressing any shortcomings. A milestone is an intermediary result on the way to achieving the overall objective. In the case of WE4F, milestones are used to determine – among other things – the awardee's ability to achieve wide scale with their innovation. Each awardee works with the Regional Innovation Hub to establish quantifiable milestones. Importantly, the achievement of milestones determines future WE4F funding.

As mentioned in the introduction, WE4F innovators are not required to develop individual MEL Plans. However, (for USAID RIHs) each awardee's Acceleration Work Plan has a MEL section and describes the quantifiable milestones by which the Founding Partners can evaluate performance. These milestones have been tracked against timelines and resources. However, as with any innovation programming, WE4F knows that some innovations fail. Therefore, if at any annual review an innovation is no longer meeting agreed upon milestones and matching fund requirements, Water and Energy for Food may not continue to fund it. WE4F will also provide the external evaluator with all awardee Acceleration Work Plans.

C.3 Evaluation questions

Based on the performance of the innovations that WE4F funded and/or supported, this mid-term review and final program evaluation should determine whether or not the WE4F program as a whole led to improved food production, food value chain sustainability, and climate adaptation through the use of water and/or energy efficient innovations as well the impact of these changes on dimensions of gender, poverty, and the environment. In addition to these questions, the final evaluation will also answer how both the intended and unintended impacts of the program have changed since the time of the mid-term review as well as how the innovation support model adopted by WE4F has played a role in these intended and unintended impacts. During both of these evaluations, the evaluator will examine evidence provided to WE4F by RIHs and their associated WE4F innovators as well as independent impact data garnered from the program's External Surveyors, in order to determine the intended as well as unintended impact of the program around the following questions. All of the questions listed below are viewed as important and are expected to be answered through the mid-term and final evaluation:

A. WE4F Innovation Level

1. To what extent has WE4F contributed to the outcomes and results outlined by the indicators and the WE4F results Framework in the WE4F PMEP during project implementation and post project implementation? In answering this question, the evaluator should take into consideration the following:

Relevance

- a. Is there demand and local ownership for the WE4F innovations (individually and across all innovations)?
- b. To what extent does WE4F's innovation support strategy address key needs related to water efficiency, energy efficiency and use of renewable energies, or food security for marginalized groups (the poor, women, youth, ethnic minorities, rural communities)?

Coherence

- c. To what extent do WE4F innovations contribute towards or contradict the United Nations' Sustainable Development Goals including those related to poverty, hunger, gender equality, affordable and clean energy, preservation of water resources or biodiversity, and climate change adaptation?

Effectiveness

- d. Does each RIH help its relevant innovators overcome organizational capacity? Were there additional barriers that were not addressed?
- e. Did WE4F-supported projects increase water efficiency/make water more accessible? Did WE4F projects meet their water efficiency/availability targets? Overall, across all innovators, did the program meet the water efficiency/availability targets? What were the unintended effects of WE4F-supported projects on local water efficiency and water resources?
- f. Did WE4F-supported projects increase agricultural energy efficiency/increase the use of renewable energy? Did WE4F projects meet their energy efficiency targets? Overall, across all innovators, did the program meet the energy efficiency/availability targets? What were the unintended effects of WE4F-supported projects on local agricultural energy efficiency, access, and energy resources?
- g. Did WE4F-supported projects lead to more agricultural productivity and adaptation to climate change? Did WE4F projects meet their agricultural productivity targets? Overall, across all innovators, did the program meet the agricultural productivity targets? What were the unintended effects of WE4F supported projects on agricultural productivity?
- h. To what extent have the established partnerships with companies (in the form of PPPs) been able to meet their energy or water efficiency targets? Can the PPP approach be deemed successful overall in contributing to WE4F program-level goals?
- i. Did WE4F-supported projects contribute to increased incomes of smallholder farmers, especially women farmers and those in the Base of Pyramid?

Efficiency

- j. To what extent were resources and support provided by WE4F used efficiently by innovators and other WE4F-supported partners to maximize positive impacts on marginalized groups (through income, employment, water/environmental, energy/environmental impacts)?
- k. To what extent were resources and support provided by WE4F used efficiently by innovators and other WE4F-supported partners to maximize positive impacts on environmental sustainability or biodiversity?

Impact

- l. Have marginalized groups (the poor, women, youth, ethnic minorities, rural communities) been positively and/or negatively impacted (through income, employment, water/environmental, energy/environmental) from WE4F supported innovations? Specifically, has WE4F reduced the number of people in poverty as a result of supporting WE4F-supported innovations and has WE4F increased the number of women benefiting from WE4F-supported innovations. What were the unintended effects of WE4F innovations on marginalized groups?
- m. Were WE4F-supported projects environmentally sustainable (i.e., did they provide positive environmental benefit, or did they do more environmental harm than good)? Did WE4F-supported projects have negative effects on water resources or biodiversity? What intended or

unintended impacts did WE4F-supported projects have on other natural resources (e.g., land use changes, battery waste, etc.)?

- n. To what extent are there negative trade-offs observed between WE4F innovations' impacts on marginalized groups in terms of economic or social results and impacts on environmental sustainability or biodiversity?

Sustainability

- o. Were WE4F-supported projects likely to be financially and socially sustainable by the organizations supporting the innovation?
- p. 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 WE4F awards.

2. How much of the measured change reflected in outcome and impact-level WE4F indicators can, in fact, be attributed to the WE4F-supported projects? That is, what portion of the results reported is not explained by the projects examined by the evaluation? (WE4F 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 WE4F-supported projects and what was actually delivered in Year 1 and then Years 2-4 of the projects?

For the final evaluation only:

4. To what extent has WE4F-supported projects' contribution to the outcomes and results outlined by the indicators and the WE4F results Framework changed since the time of the mid-term review?

5. To what extent has WE4F's new model (i.e., locally led Regional Innovation Hubs providing technical assistance, enabling environment support and investment facilitation as compared to a centralized Washington DC incubator/accelerator; & focus on the enabling environment activities) support contributed to the outcomes and results reported by the WE4F indicators? What have been the positive and negative impacts of the WE4F model on innovator-level results? What unintended impacts has the model used by WE4F had on innovator-level results?

B. WE4F Program Level

Relevance

- a) To what extent did each WE4F RIH provide WE4F innovators with technical assistance that innovators deemed useful? Did WE4F enable certain new expertise to be deployed that would otherwise likely not have been deployed/used by the individual partners?
- b) How do WE4F interventions including enabling environment work, technical assistance, and investment facilitation differ in meeting the needs of WE4F-supported partners and the scaling of their innovations?

Coherence

- c) To what extent were the interventions implemented at each WE4F Regional Innovation Hub compatible in achieving impacts related to water efficiency, energy efficiency and use of renewable energies, or food security across the WE4F program?
- d) To what extent was the enabling environment work carried out by WE4F compatible or not with the intended positive impacts on marginalized groups related to water efficiency, energy efficiency and use of renewable energies, or food security?

Effectiveness

- e) To what extent did each RIH provide WE4F 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)?

- f) To what extent did each RIH provide WE4F innovators with investment facilitation that led to additional funding, new financial forecasting capabilities? To what extent did each WE4F RIH provide WE4F innovators with investment facilitation that innovators deemed useful? Did WE4F enable certain new investment facilitation and partnerships to be deployed that would otherwise likely not have been deployed/used by the individual partners?
- g) How well did founding partners interact within WE4F and what lessons should be taken from their interactions? To what extent did alignment between FPs and with RIHs contribute towards an improved enabling environment for innovators?

Efficiency

- h) To what extent were the WE4F results to date in balance with the level of effort and resources (funds, human resources including by the FPs, RIHs, and Secretariat)?
- i) To what extent is the level of effort and resources spent by applicants/innovators in balance with the added value WE4F brings?
- j) To what extent was each RIH efficiently set up, organized and managed?
- k) To what extent are the administrative costs for managing WE4F 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.)

Impact

- l) To what extent did each RIH provide WE4F innovation end users with end-user financing that improved access to and uptake of WE4F-support innovations? To what extent did each RIH provide WE4F innovation end users with end-user financing that contributed to local poverty alleviation and/or increases in income. Especially for women and the rural poor?
- m) To what extent did each RIH provide WE4F innovators with support that improved the enabling environment around WE4F innovations? To what extent did each WE4F RIH provide WE4F innovators with enabling environment to support those innovators deemed useful? Did WE4F enable certain new networks to be created that would otherwise likely not have been deployed/used by the individual partners?
- n) To what extent did each RIH provide WE4F innovators with support that improved their ability to more effectively target end users such as women and the poor by improving access to or the usefulness of innovations for these groups? To what extent did each WE4F RIH provide WE4F innovators with support to strengthen their organizational capacities with respect to gender (e.g., expanding the female workforce, female leadership within innovator companies)? What were the unintended effects of innovator support provided by RIHs on cross-cutting issues of gender and poverty?
- o) To what extent did each RIH provide WE4F innovators with support that improved their positive impacts on environment and climate, including sustainable management of water resources and biodiversity? What were the unintended effects of innovator support provided by RIHs on cross-cutting issues of environmental sustainability/biodiversity?
- p) To what extent did the strengthening of innovators' impact on cross-cutting issues including gender, poverty, and environmental sustainability/biodiversity contribute to increased access to external financing or interest from external investors?

Sustainability

- q) How effectively have investment risks been managed by the program? (Number of failed projects, timeliness of reaction on problems observed etc.)
- r) To what extent has the WE4F program ensured that impacts can be sustained in the medium to long-term by the partners themselves?

For the final evaluation only:

- s) To what extent have answers to the above program-level questions changed since the time of the mid-term review?
- t) What positive or negative impact has WE4F's new model had on each RIH's organizational capacity regarding set-up, management, and implementation of innovator support? What unintended impacts has WE4F's new model had on each RIH's organizational capacity in this manner?

For all above questions related to A. WE4F Innovation Level and B. WE4F Program Level, the final evaluation will also answer how the results for each question have changed since the time of the mid-term review.

C.4 Evaluation design and methodology

WE4F expects that the evaluator will conduct the following in the mid-term review and final evaluation:

It is expected that the mid-term review will review WE4F program operations and supported innovations from Jan. 2021 – October 2021 to validate/invalidate evidence presented by WE4F innovators/the WE4F program. The final evaluation will review awards provided November 2021-June 2023 to validate/invalidate evidence presented by WE4F innovators/WE4F program as well as how this validated evidence has changed since the conclusion of the mid-term review (To be determined in workplan).

Both evaluations should include a description of what types of innovations the WE4F program supports including the following information:

- a. Technically, what types of innovations have been supported in these projects? How many innovations have been awarded funding? What are the basic demographics/descriptors of innovators?
- b. What types of enterprises are participating and with what kind of (financial) interests?

Additionally, the final evaluation should include descriptions cited in questions (a.) and (b.) above for innovators and other WE4F-supported projects which joined WE4F after the mid-term evaluation as well as the following information:

- A. What innovators and types of innovations included in the mid-term evaluation have remained sustainable and further scaled since the mid-term evaluation?

The mid-term review and final evaluation will draw on WE4F awardee site visits, data reported by awardees, RIHs, and the Secretariat, as well as External Surveyor data examining program implementation, organizational strength, as well as the contributions to cross-cutting issues of gender and poverty, water-efficiency, energy-efficiency, and agriculture productivity gains by the awarded innovations. These and other findings will be matched with secondary data from research on similar innovations. Data used for the mid-term review and final evaluation may include information from rejected proposals and their applicants. All data collected and managed by external evaluators must be compliant with the data security guidelines of the European Union's General Data Protection Regulations (GDPR). In addition, as noted above, the selected Evaluation Team should conduct a survey to gather data from WE4F applicants that did not receive award funding with comparable results from WE4F innovators so that we can see if there is a difference in outcomes between the groups. The evaluation must also conform to the OECD DAC Quality Standards for Development Evaluation (2019) in its planning, design, implementation, and reporting while evaluating the WE4F program in terms of the following criteria: relevance, coherence, effectiveness, efficiency, impact, and sustainability.

C.5 Data collection and analysis

USAID requests that the evaluator complete the following table as part of its detailed design and evaluation plan.

Evaluation question	Data source	Data collection method (including sampling methodology, where applicable)	Data analysis method

C.6 Key personnel / Evaluation Team composition

WE4F leaves it up to the subcontractor to determine the Evaluation Team. A typical team should include one team leader who will serve as the primary coordinator with USAID/WE4F Secretariat. At least one team member should be an evaluation specialist. At least 2 members of the team should be agriculture specialists (not mutually exclusive with the other requirements below). The recruitment of local evaluators is highly encouraged. Requested qualifications and/or skills may relate to: (1) evaluation design, methods, management, and implementation; (2) specific relevant technical subject matter expertise, (c) experience with gender equality /women's economic empowerment, poverty reduction, and business approaches which target the Base of the Pyramid (d) regional or country experience; (e) local language skills. All team members will be required to provide a signed statement attesting to a lack of conflict of interest or describing any existing conflict of interest.

The Evaluation Team shall demonstrate familiarity with USAID's evaluation policies and guidance included in the USAID Automated Directive System (ADS) in Chapter 200 and the OECD/DAC Quality Standards for Development Evaluation (2019). The Evaluation Team must also have at least one member with demonstrated experience conducting evaluations within the German public sector on at least one occasion. Additionally, demonstrated experience conducting at least one evaluation with USAID is also required. Applicants must also have at least one team member with demonstrated experience conducting at least one evaluation of an international cooperation project according to the OECD/DAC criterion.

WE4F requires:

Lead consultant (1): Will be the contract holder and responsible for deliverables. Minimum 12 years of experience in MEL, as well as:

1. a focus on either institutional arrangements or water/ag and/or energy/ag sector marketing in developing countries within regions where WE4F is operational.
2. a focus on gender and Base of the Pyramid inclusion; knowledge regarding sustainable natural resource management including water and biodiversity.
3. and a good understanding of the policy environment of the Founding Partners; prior experience evaluating Grand Challenge innovation programs.

Senior Consultant (2): Supports lead consultant. Minimum 7 years of experience in:

1. water/ag and/or energy/ag sector marketing in developing countries.
2. gender and Base of the Pyramid inclusion.
3. sustainable natural resource management including water and biodiversity.
4. and a demonstrated experience and results working in major evaluations.
5. One of the two senior consultants must have experience evaluating Grand Challenge innovation programs.

Local consultants from each of the 3 regions listed below to provide more regional/country specific context to the related innovations for the following regions: S./S.E. Asia, S. and Central Africa, Middle East/North Africa and (3): Supports lead consultant. Minimum 5 years of experience including:

1. marketing of water/ag and/or energy/ag related products and other interventions in developing countries
2. and demonstrated experience and results working in major evaluations.
3. At least 2 local consultants must have energy/ag experience.

Time input

Lead Consultant: 175 days, within total timeframe of 36 months

Consultant 2 and 3: 120 days each, within total timeframe of 36 months

Local Consultants 5: 30 days each, within a total timeframe of 6 months (2 months for Mid-Term Evaluation; 2 months for Final Evaluation)

The time allocations above are illustrative, and we expect the awarded contractor to have their proposal in the final evaluation plan. The contract may have more than 3 local consultants if necessary. The WE4F Secretariat MEL Managers will participate on the Evaluation Team in an advisory role. The WE4F Team Lead of the Evaluation may observe all of the data collection efforts.

[END OF SECTION C]

ANNEX 2: WE4F EVALUATION QUESTIONS AND INDICATORS

Below a list of the indicators, and further down the evaluation questions. The EQ and indicator codes are presented in the headings of the relevant (sub)sections. EQ and indicators are written in full in orange boxes in the text, just before the summary findings and recommendations.

KPI

KPI1: Share of supported innovators that successfully marketed their climate friendly, energy and/ or water efficient innovations with profit

KPI2: Number of smallholder farmers and other end users using energy-efficient, water-efficient, or climate adaptation-related WE4F innovations in their activities

KPI3: Total mass of food produced as a result of WE4F innovations

KPI4: Total mass of food processed as a result of WE4F innovations

KPI5: Total energy saved in the food value chain as a result of the use of WE4F innovations

KPI6: Total volume of water consumption reduction in the food value chain as a result of WE4F innovations

KPI7: Number of smallholder farmers and other end users that experience an increase in income

KPI8: Share of innovators that use tools, methods or processes to monitor the protection of water or biodiversity

KPI9: Value of investment in US Dollars that WE4F innovators have mobilized from external sources

KPI10: Number of strategies, guidelines, or projects of international, regional or local organizations adopting and disseminating lessons learned from WE4F publications, events, or presentations.

Gin

Gin description	nr
Production/delivery of WE4F Innovation	1
Share of innovators that have introduced their product/ service to at least 1 new <i>geographical</i> market	2
Innovator's gross sales in the field of WE4F	4
Total greenhouse gas emissions saved per year by end users through use of products/services of WE4F innovators	6
Share of food producers using products/services of WE4F innovators that have increased food production by at least 20% through a more sustainable and efficient usage of water	7
Share of food producers using products/services of WE4F innovators that have increased food production by at least 20% through a more sustainable and efficient usage of energy	8
Number of new jobs created in WE4F innovator companies	10
Share of innovators that use new tools, methods or processes: a. to enhance business processes b. to address or monitor impact dimensions (e.g., gender, poverty reduction, or environmental gains)	13
Share of innovators that report an improved enabling environment in a field of WE4F engagement in terms of a. (potential) clients having increased access to the product/services; b. access to inputs having improved; c. bureaucratic hurdles having lowered	15
Share of innovators that have developed a viable business model for their product/service	16
Number of innovators that have increased knowledge of aspects of: a. gender equity; b. poverty reduction; c. environmental gains	17
Share of innovators that report increased knowledge of investment opportunities	18
Number of external partnerships formed by innovators	20
Share of innovators that are assessed as "investment ready" by potential investors or loan providers from the WE4F network	21
Share of innovators that have increased knowledge on specifics of their market due to learnings from or facilitated by WE4F	22
Number of innovators that have gained new insights from exchange activities with other innovators within the region or within other RIHs with regards to a. technological aspects b. market specifics c. their business model	23
Number of local or regional policy dialogues organized without WE4F involvement that discuss solutions provided by innovators	24
Number of finance institutions that have participated in instances of technical assistance regarding business opportunities in WE4F nexus	25

Gin description	nr
Number of external partnerships formed by Regional innovation Hubs	27
Number of end users using financing mechanisms adapted or created through WE4F engagement	28
Number of events or presentations by WE4F staff at external events that specifically deal with the sharing of lessons learned within the WE4F nexus on the following levels: a. global level b. regional innovation level	29
Number of publications that specifically deal with the sharing of lessons learned within the WE4F nexus with regards to: a. knowledge gaps on markets and technologies b. learnings within and between regional innovation RIHs including innovators c. interactions with policymakers d. sensitizing finance institutions on business opportunities within the WE4F nexus	30
Share of external stakeholders on: a. global level; b. regional innovation level; that are aware of relevant lessons learned made by WE4F	31
Grant volume provided per innovator	32
Share of co-funding provided by innovators themselves to match grant for developing/advancing innovation	33
Number of innovators being selected in the each WE4F Nexus Innovation Type	34
Ratio of selected innovators to applicants per call	35
Number of innovators that are selected outside the call structure	36
Number of instances of technical assistance provided	37
Quality of instances of technical assistance assessed by participants	38
Number of contacts of potential investors provided to innovators by WE4F	40
Share of innovators that made use of the financial guarantee instruments	41
Number of events organized to facilitate knowledge exchange horizontally within the WE4F structure (e.g., regional or interregional conference)	42
Number of events organized, or publication produced by WE4F to advocate for a more favorable enabling environment: a. on the global level; b. on the regional level	43
Number of hectares under improved management practices as a result of WE4F innovations	45

Table 32 shows the evaluation questions. The headings of this report arrange some of the questions in different places.

Table 30: Evaluation questions as presented in the SOW

Evaluation Questions
Relevance – Innovation level
1. To what extent has WE4F contributed to the outcomes and results outlined by the indicators and the WE4F results framework in the WE4F PMEP during program implementation and post program implementation?
1a. Is there demand and local ownership for the WE4F innovations (individually and across all innovations)?
1b. To what extent does WE4F's innovation support strategy address key needs related to water efficiency, energy efficiency and use of renewable energies, or food security of marginalized groups (the poor, women, youth, ethnic minorities, rural communities)?
Coherence – Innovation level
1c. To what extent do WE4F innovations contribute towards or contradict SDG including those related to poverty, hunger, gender equality, affordable and clean energy, preservation of water resources or biodiversity, and climate change adaptation?
Effectiveness – Innovation level
Impact – Innovation level
1d. Does each RIH help its relevant innovators overcome organizational capacity ? Were there additional barriers that were not addressed?
1e. Did WE4F-supported projects increase water efficiency/make water more accessible ? Did WE4F projects meet their water efficiency/availability targets? Overall, across all innovators, did the program meet the water efficiency/availability targets? What were the unintended effects of WE4F-supported projects on local water efficiency and water resources?
1f. Did WE4F-supported projects increase agricultural energy efficiency/increase the use of renewable energy ? Did WE4F projects meet their energy efficiency targets? Overall, across all innovators, did the program meet the energy efficiency/availability targets? What were the unintended effects of WE4F-supported projects on local agricultural energy efficiency, access, and energy resources?
1g. Did WE4F-supported projects lead to more agricultural productivity and adaptation to climate change ? Did WE4F projects meet their agricultural productivity targets? Overall, across all innovators, did the program meet agricultural productivity targets? What were the unintended effects of WE4F supported projects on agricultural productivity? ¹⁰⁵
1h. To what extent have the established partnerships with companies (in the form of PPPs) been able to meet their energy or water efficiency targets ? Can the PPP approach be deemed successful overall in contributing to WE4F program-level goals?
1i. Did WE4F-supported projects contribute to increased incomes of smallholder farmers, especially women farmers and those in the Base of Pyramid?
1l. Have marginalized groups (the poor, women, youth, ethnic minorities, rural communities) been positively and/or negatively impacted (through income, employment, water/environmental, energy/environmental) from WE4F supported innovations? Specifically, has WE4F reduced the number of people in poverty as a result of supporting WE4F-supported innovations and has WE4F increased the number of women benefiting from WE4F-supported innovations. What were the unintended effects of WE4F innovations on marginalized groups?
2. How much of the measured change reflected in outcome and impact-level WE4F indicators can, in fact, be attributed to the WE4F-supported projects? That is, what portion of the results reported is not explained by the projects examined by the evaluation? (WE4F recognizes that this is a difficult question to answer but wants the evaluator to make the best effort to answer this question).
Sustainability – Innovation level
1h. To what extent have the established partnerships with companies (in the form of PPPs) been able to meet their energy or water efficiency targets ? Can the PPP approach be deemed successful overall in contributing to WE4F program-level goals?
1m. Were WE4F-supported projects environmentally sustainable (i.e., did they provide positive environmental benefit, or did they do more environmental harm than good)? Did WE4F-supported projects have negative effects on water resources or biodiversity? What intended or unintended impacts did WE4F-supported projects have on other natural resources (e.g., land use changes, battery waste, etc.)?
1n. To what extent are there negative trade-offs observed between WE4F innovations' impacts on marginalized groups in terms of economic or social results and impacts on environmental sustainability or biodiversity?
1o. Were WE4F-supported projects likely to be (become) financially and socially sustainable by the organizations supporting the innovation?
1p. 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 WE4F awards?
Efficiency of project management – project level
1d. Does each RIH help its relevant innovators overcome organizational capacity ? Were there additional barriers that were not addressed?

¹⁰⁵ See definitions at the beginning of this report, for definition of productivity

Evaluation Questions
1j. To what extent were resources and support provided by WE4F used <u>efficiently</u> by innovators and other WE4F-supported partners to maximize positive <u>impacts on marginalized groups</u> (through income, employment, water/environmental, energy/environmental impacts)?
1k. To what extent were resources and support provided by WE4F used efficiently by innovators and other WE4F-supported partners to maximize positive impacts on environmental sustainability or biodiversity?
3. To what extent are there differences between the planned WE4F-supported projects and what was actually delivered in year 1 and then years 2-4 of the projects?
a) To what extent did each WE4F RIH provide WE4F innovators with TA that innovators deemed useful? Did WE4F enable certain new expertise to be deployed that would otherwise likely not have been deployed/used by the individual partners?
b) How do WE4F interventions, including enabling environment work, TA and IF, differ between RIH in meeting the needs of WE4F-supported partners and the scaling of their innovations?
c) To what extent were the interventions implemented at each WE4F RIH compatible in achieving impacts related to water efficiency, energy efficiency and use of renewable energies, or food security across the WE4F program?
d) To what extent was the enabling environment work carried out by WE4F compatible or not with the intended positive impacts on marginalized groups related to water efficiency, energy efficiency and use of renewable energies, or food security?
e) To what extent did each RIH provide WE4F innovators with TA 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)?
f) To what extent did each RIH provide WE4F innovators with IF that led to additional funding, new financial forecasting capabilities? To what extent did each WE4F RIH provide WE4F innovators with IF that innovators deemed useful? Did WE4F enable certain new IF and partnerships to be deployed that would otherwise likely not have been deployed/used by the individual partners?
g) How well did founding partners interact within WE4F and what lessons should be taken from their interactions? To what extent did alignment between FPs and with RIHs contribute towards an improved enabling environment for innovators?
h) To what extent were the WE4F results to date in balance with the level of effort and resources (funds, human resources including by the FPs, RIHs, and Secretariat)?
i) To what extent is the level of effort and resources spent by applicants/innovators in balance with the added value WE4F brings?
j) To what extent was each RIH efficiently set up, organized and managed?
k) To what extent are the administrative costs for managing WE4F above, below, or on par with the cost of similar Challenge funds? (Special Consideration to be made for funds that provide TA to their innovators)
l) To what extent did each RIH provide WE4F innovation end users with end user financing that improved access to and uptake of WE4F-support innovations? To what extent did each RIH provide WE4F innovation end users with end user financing that contributed to local poverty alleviation and/or increases in income. Especially for women and the rural poor?
m) To what extent did each RIH provide innovators with support that improved the enabling environment around WE4F innovations? To what extent did each WE4F RIH provide innovators enabling environment to support that innovators deemed useful? Did WE4F enable certain new networks to be created that would otherwise likely not have been deployed/used by the individual partners?
n) To what extent did each RIH provide WE4F innovators with support that improved their ability to more effectively target end users such as women and the poor by improving access to or the usefulness of innovations for these groups? To what extent did each WE4F RIH provide WE4F innovators with support to strengthen their organizational capacities with respect to gender (e.g., expanding the female workforce, female leadership within innovator companies)? What were the unintended effects of innovator support provided by RIHs on cross-cutting issues of gender and poverty?
o) To what extent did each RIH provide WE4F innovators with support that improved their positive impacts on environment and climate, including sustainable management of water resources and biodiversity? What were the unintended effects of innovator support provided by RIHs on cross-cutting issues of environmental sustainability/biodiversity?
p) To what extent did the strengthening of innovators' impact on cross-cutting issues including gender, poverty, and environmental sustainability/biodiversity contribute to increased access to external financing or interest from external investors?
q) How effectively have investment risks been managed by the program? (Number of failed projects, timeliness of reaction on problems observed etc.)
r) To what extent has the WE4F program ensured that impacts can be sustained in the medium to long-term by the partners themselves?
Hypothesis I – By investing in innovations at the water-energy-agricultural nexus, the <i>pace of development</i> in all 3 sectors will be substantially faster than if we relied on 'traditional' (more sectoral) development programming alone.
Hypothesis II – By sourcing technologies and business model innovators that have already achieved early adoption (1,000-10,000 end users), WE4F innovations are much more likely to transition to scale (10,000-1,000,000 end users) or reach wide-scale adoption (greater than 1,000,000 end users).
Hypothesis III – By investing in acceleration-oriented TA and IF (incl. for end users to purchase WE4F innovations), we will substantially increase the likelihood that innovators will have the knowledge, tools and resources to scale their innovations.

ANNEX 3: STATEMENTS OF DIFFERENCE

Any statements of difference regarding significant unresolved differences of opinion by funders, implementers, and/or members of the Evaluation Team

ANNEX 4: DATA COLLECTION AND ANALYSIS TOOLS

All data collection and analysis tools used in conducting the evaluation, such as questionnaires, checklists, survey instruments, discussion guides.

All sources of information, properly identified and listed

- KII questionnaire for Innovators
- KII questionnaire for Regional Innovation Hubs
- End User survey (Survey Monkey)
- Innovation survey (Survey Monkey)

ANNEX 5: STATEMENTS ON CONFLICTS OF INTEREST

Forms for all Evaluation Team members, either attesting to a lack of conflicts of interest or describing existing conflicts of interest



CONFLICT OF INTEREST CERTIFICATION

Water and Energy for Food Grand Challenge

Applicant: Christopher David Hemson

Organizational Conflict of Interest means that because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the Government, or the person's objectivity in performing the work is or might be otherwise impaired, or otherwise impaired, or a person has an unfair competitive advantage.

STATEMENT OF CONFLICT OF INTEREST

To the best of my knowledge, neither I, nor any member of my family, have any direct financial or employment interest in any of the organizations submitting applications for consideration and review, which conflicts substantially, or appears to conflict substantially, with my duties as a member of the Selection Committee.

In the event that I later become aware of such conflict of interest, I agree to disqualify myself and report this fact to the Agreement Officer and Selection Committee Chairperson, and to abide by the instruction that he/she may give me in this matter. I understand that having a Conflict of Interest may prohibit me from participation in the source selection process for the Water and Energy for Food (WE4F) Grand Challenge Regional Innovation Hub BAA process.

Technical Evaluation Member: Christopher David Hemson

Signature: 

Date: Aug 10, 2021



CONFLICT OF INTEREST CERTIFICATION

Water and Energy for Food Grand Challenge

Applicant: Elise Pinner

Organizational Conflict of Interest means that because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the Government, or the person's objectivity in performing the work is or might be otherwise impaired, or otherwise impaired, or a person has an unfair competitive advantage.

STATEMENT OF CONFLICT OF INTEREST

To the best of my knowledge, neither I, nor any member of my family, have any direct financial or employment interest in any of the organizations submitting applications for consideration and review, which conflicts substantially, or appears to conflict substantially, with my duties as a member of the Selection Committee.

In the event that I later become aware of such conflict of interest, I agree to disqualify myself and report this fact to the Agreement Officer and Selection Committee Chairperson, and to abide by the instruction that he/she may give me in this matter. I understand that having a Conflict of Interest may prohibit me from participation in the source selection process for the Water and Energy for Food (WE4F) Grand Challenge Regional Innovation Hub BAA process.

Technical Evaluation Member: Elise Pinner

Signature: 

Date: Aug 11, 2021



CONFLICT OF INTEREST CERTIFICATION

Water and Energy for Food Grand Challenge

Applicant: Sarah Mangones

Organizational Conflict of Interest means that because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the Government, or the person's objectivity in performing the work is or might be otherwise impaired, or otherwise impaired, or a person has an unfair competitive advantage.

STATEMENT OF CONFLICT OF INTEREST

To the best of my knowledge, neither I, nor any member of my family, have any direct financial or employment interest in any of the organizations submitting applications for consideration and review, which conflicts substantially, or appears to conflict substantially, with my duties as a member of the Selection Committee.

In the event that I later become aware of such conflict of interest, I agree to disqualify myself and report this fact to the Agreement Officer and Selection Committee Chairperson, and to abide by the instruction that he/she may give me in this matter. I understand that having a Conflict of Interest may prohibit me from participation in the source selection process for the Water and Energy for Food (WE4F) Grand Challenge Regional Innovation Hub BAA process.

Technical Evaluation Member: Sarah Mangones

Signature: *Sarah Mangones*
Sarah Mangones 10/14/2022 10:00 AM

Date: Jul 14, 2022



CONFLICT OF INTEREST CERTIFICATION

Water and Energy for Food Grand Challenge

Applicants: Dr. Samir ElGwely

Organizational Conflict of Interest means that because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the Government, or the person's objectivity in performing the work is or might be otherwise impaired, or otherwise impaired, or a person has an unfair competitive advantage.

STATEMENT OF CONFLICT OF INTEREST

To the best of my knowledge, neither I, nor any member of my family, have any direct financial or employment interest in any of the organizations submitting applications for consideration and review, which conflicts substantially, or appears to conflict substantially, with my duties as a member of the Selection Committee.

In the event that I later become aware of such conflict of interest, I agree to disqualify myself and report this fact to the Agreement Officer and Selection Committee Chairperson, and to abide by the instruction that he/she may give me in this matter. I understand that having a Conflict of Interest may prohibit me from participation in the source selection process for the Water and Energy for Food (WE4F) Grand Challenge Regional Innovation Hub BAA process.

Technical Evaluation Member: Dr. Samir ElGwely

Signature: *Dr. Samir ElGwely*

Date: Feb 14, 2023



CONFLICT OF INTEREST CERTIFICATION

Water and Energy for Food Grand Challenge

Applicant: Virendar Singh Khatana

Organizational Conflict of Interest means that because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the Government, or the person's objectivity in performing the work is or might be otherwise impaired, or otherwise impaired, or a person has an unfair competitive advantage.

STATEMENT OF CONFLICT OF INTEREST

To the best of my knowledge, neither I, nor any member of my family, have any direct financial or employment interest in any of the organizations submitting applications for consideration and review, which conflicts substantially, or appears to conflict substantially, with my duties as a member of the Selection Committee.

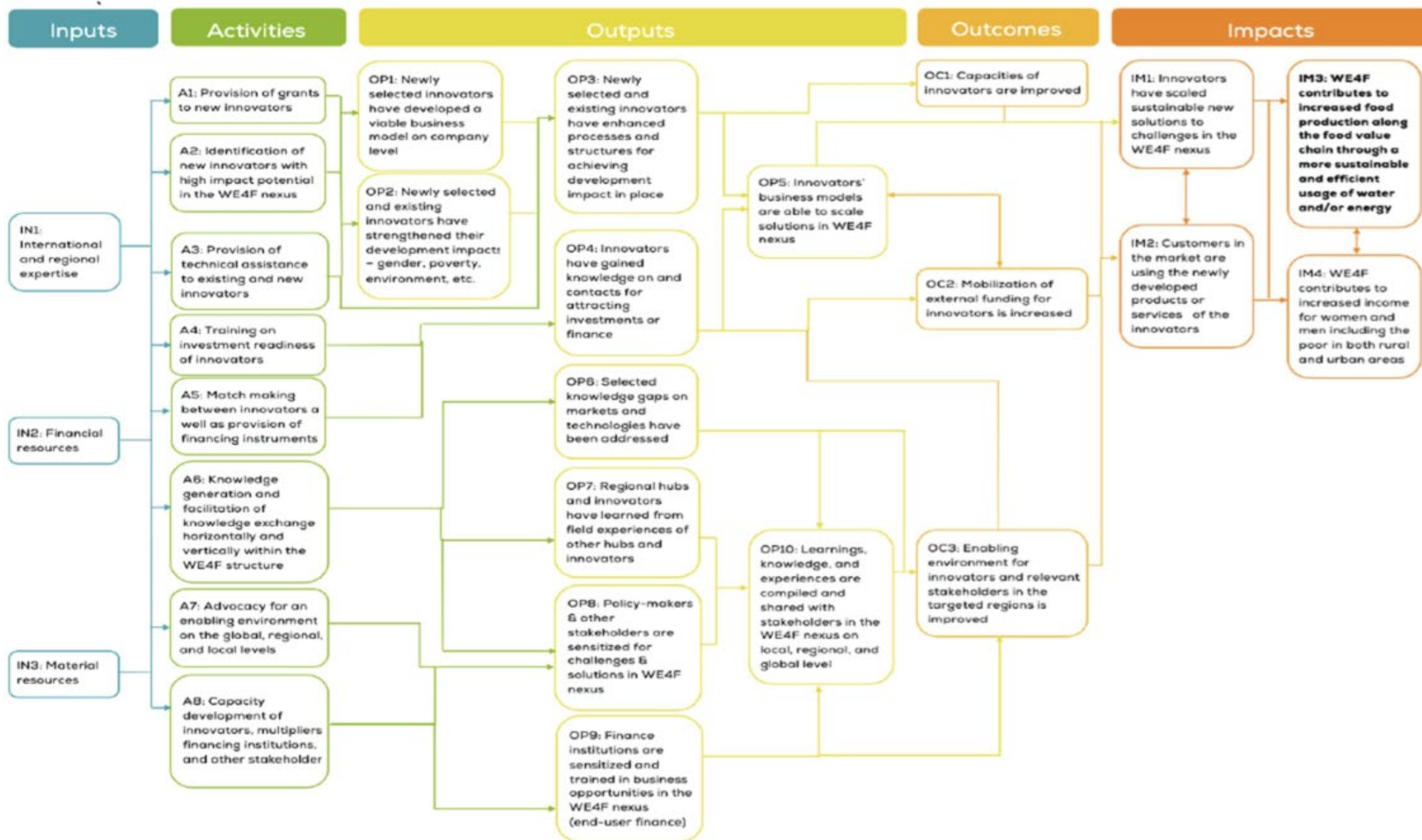
In the event that I later become aware of such conflict of interest, I agree to disqualify myself and report this fact to the Agreement Officer and Selection Committee Chairperson, and to abide by the instruction that he/she may give me in this matter. I understand that having a Conflict of Interest may prohibit me from participation in the source selection process for the Water and Energy for Food (WE4F) Grand Challenge Regional Innovation Hub BAA process.

Technical Evaluation Member: Virendar Singh Khatana

Signature: *Virendar Singh Khatana*
Virendar Singh Khatana 07/15/2022 14:03:00 +05:30

Date: Jul 15, 2022

ANNEX 6: WE4F THEORY OF CHANGE



Source: Syspons 2019

ANNEX 7: EVALUATION MATRIX

OECD	Evaluation Questions (shorter formulation; for original formulation see Annex 3)	Relevant Result	KPI #	Data source / method					
				Documen- tation	USAID /COR	Service providers / survey, KII	RIH team / survey, KII	Innovations / survey, KII	End users / survey (Dexis)
	Innovation level								
Relevance	1. WE4F contributing to results, Consider: 1a. Local ownership for the WE4F innovations	IM-2	2	X				X	
	1b. Strategy addressing marginalized groups' key needs related to water & energy efficiency, renewables, food security	IM-1,4	1, 7	X				X	
Coherence	1c. Contributing towards or contradict SDG	OP-2,3 IM-1,3,4	2 to 7	X			X	X	
SSEffectiveness	1d. RIH helping innovations overcome organizational capacity barriers	OP-1-7, OP-10, OC-1,3 A3,6,7,8	1, 3 to 10	X				X	
	1e. Projects increase water efficiency, -accessibility? Meet efficiency/availability targets? Unintended effects on water efficiency, -resources?	OP-6? IM1,2,3		X				X	X

OECD	Evaluation Questions (shorter formulation; for original formulation see Annex 3)	Relevant Result	KPI #	Data source / method					
				Documen- tation	USAID /COR	Service providers / survey, KII	RIH team / survey, KII	Innovations / survey, KII	End users / survey (Dexis)
	1f. Projects increase agricultural energy efficiency, use of renewable energy? Meet energy efficiency/availability targets? Unintended effects on ag. energy efficiency, -access, -resources?	OP-6? IM3		X					
	1g. More ag. productivity and adaptation to climate change? Unintended effects on agricultural productivity?	OP-2,3 IM-4		X			X	X	
	1h. PPP meet their energy or water efficiency targets? PPP approach contributing to WE4F program-level goals?	OP-8,9,10 OC-3		X			X	X	
	1i. Did WE4F-supported projects contribute to increased incomes of smallholders, especially women farmers and those in the Base of Pyramid?	IM-4		X			X	X	X
Efficiency	1j. Resources and support used efficiently by innovations, a.o. partners to maximize positive impacts on marginalized groups?	OP-1,2,4-7,10, OC-1, IM-3,4	2 to 7	X				X	

OECD	Evaluation Questions (shorter formulation; for original formulation see Annex 3)	Relevant Result	KPI #	Data source / method					
				Documen- tation	USAID /COR	Service providers / survey, KII	RIH team / survey, KII	Innovations / survey, KII	End users / survey (Dexis)
	1k. Resources and support used efficiently by innovations, a.o. partners to maximize environmental sustainability or biodiversity impact?	OP-1,2, 4-7,10 OC-1, IM-1,2,3	6	X				X	
Impact	1l. Marginalized positively and/or negatively impacted by innovations? # people in poverty ? # women benefiting ? Unintended effects on marginalized groups?	IM-3,4	1 to 7	X			X	X	X
	1m. Projects environmentally sustainable? Negative effects on water resources, biodiversity? (Un)intended impacts on other NR?	IM-3		X			X	X	X
	1n. Negative trade-offs between innovations' impact on marginalized groups: socio-economic results and impacts on environmental sustainability or biodiversity?			X				X	X

OECD	Evaluation Questions (shorter formulation; for original formulation see Annex 3)	Relevant Result	KPI #	Data source / method					
				Documen- tation	USAID /COR	Service providers / survey, KII	RIH team / survey, KII	Innovations / survey, KII	End users / survey (Dexis)
Sustainability	1o. Projects likely to be (become) financially and socially sustainable?			X				X	
	1p. Balance between public/social engagement and private/public engagement? Private funds contribute to developmental objectives during, following awards?	OC2 OP4,9?	9	X			X	X	
Impact	2. How much outcome, impact can be attributed to the supported projects? What portion of results not explained by the evaluation?	OP3,6	all	X			X	X	
Efficiency	5 Differences between planned and delivered projects in year 1 and then years 2-4 of the projects?			X			X		
	Program Level								
Relevance	a) RIH provided innovations with useful TA? Enable new expertise to be deployed that would otherwise not have been deployed by partners?	OP-1,6		X				X	
	b) Interventions (enabling environment work, TA, IF), differ from other grant challenges in meeting partners' needs and scaling their innovations?	OP-1,6		X	X				

OECD	Evaluation Questions (shorter formulation; for original formulation see Annex 3)	Relevant Result	KPI #	Data source / method					
				Documen- tation	USAID /COR	Service providers / survey, KII	RIH team / survey, KII	Innovations / survey, KII	End users / survey (Dexis)
Coherence	c) RIH interventions compatible in achieving water efficiency, energy efficiency use of renewables, food security across the program?	OP-2		X					
	d) Enabling environment work compatible with the intended positive impacts on marginalized groups related to water efficiency, energy efficiency, use of renewables, or food security?	A-7 OP-8,9, 10	10	X			X	X	
Effectiveness	e) RIH provided innovations with TA that led to immediate success (i.e., delivered as awardee expected) and long term success (actually adopted by the innovation, results value recognized, such as a shift in strategy, an effective partnership, additional funding, new financial forecasting capabilities, or improved manufacturing approach, product design)?	OC-1 A3	1, 2, 9	X			X	X	

OECD	Evaluation Questions (shorter formulation; for original formulation see Annex 3)	Relevant Result	KPI #	Data source / method					
				Documen- tation	USAID /COR	Service providers / survey, KII	RIH team / survey, KII	Innovations / survey, KII	End users / survey (Dexis)
	6 RIH provided innovations with IF that led to additional funding, new financial forecasting capabilities? RIH provided innovations with useful IF? WE4F enabled new IF and partnerships that would otherwise likely not have been deployed by the individual partners?	OC-2,9 A5	9	X			X	X	
	g) How well did FP interact within WE4F and what lessons should be taken from their interactions? FP and RIH alignment contributed towards improved enabling environment?	A-7		X	X				
Efficiency	h) To what extent were the WE4F results to date in balance with the level of effort and resources (funds, human resources including by the FPs, RIHs, and Secretariat)?			X	X		X		
	i) To what extent is the level of effort and resources spent by applicants/innovations in balance with the added value WE4F brings?	All IM		X	X		X		

OECD	Evaluation Questions (shorter formulation; for original formulation see Annex 3)	Relevant Result	KPI #	Data source / method					
				Documen- tation	USAID /COR	Service providers / survey, KII	RIH team / survey, KII	Innovations / survey, KII	End users / survey (Dexis)
	j) To what extent was each RIH efficiently set up, organized and managed?			X	X		X		
	k) How do administrative costs for managing compare with cost of similar Challenge funds? (consideration should be made for funds that provide TA to their innovations)			X	X				
Impact	l) RIH provide end users with financing that improved access to and uptake of WE4F innovations? RIH provided end users with financing to contribute to local poverty alleviation, income increases, especially for women, poor?		7	X			X	X	X

OECD	Evaluation Questions (shorter formulation; for original formulation see Annex 3)	Relevant Result	KPI #	Data source / method					
				Documen- tation	USAID /COR	Service providers / survey, KII	RIH team / survey, KII	Innovations / survey, KII	End users / survey (Dexis)
	m) RIH provided innovations with support that improved enabling environment around innovations? RIH provided innovations with useful enabling environment support? Enable new networks that would otherwise likely not have been deployed/used by the individual partners?		1	X			X	X	
	n) RIH provided innovations with support that improved ability to more effectively target end users (women, poor), by improving access to or the usefulness of innovations for these groups? RIH provided support to strengthen innovations' organizational capacities, gender (e.g., expanding female workforce, female leadership)? Unintended effects of innovation support on cross-cutting issues? (gender, poverty)		7	X			X	X	

OECD	Evaluation Questions (shorter formulation; for original formulation see Annex 3)	Relevant Result	KPI #	Data source / method					
				Documen- tation	USAID /COR	Service providers / survey, KII	RIH team / survey, KII	Innovations / survey, KII	End users / survey (Dexis)
	o) RIH provided innovations support that improved positive impacts on environment and climate, incl. sustainable WRM, biodiversity? Unintended effects of innovation support on cross-cutting issues of environment/sustainability/biodiversity?		8	X			X	X	
	p) Strengthening innovations' impact on cross-cutting issues, does it contribute to increased access to external financing, investors' interest?		9	X			X	X	
Sustaina bility	q) Investment risks management?			X	X	X	X		
	r) Impact sustained in medium to long-term by the partners?			X				X	

ANNEX 8: LIST OF COUNTRY INNOVATIONS AND OTHER TABLES

Below presents the complete list of country-innovations, by country. In **bold yellow**, the companies that operate in more than one country. *Grey italicized* lines indicate CFI2 innovations.

Table 31: Complete list of country-innovations by country, CFI and innovation focus

Region	Country-innovation	WE4F history	c-focus *, **	women-led	WE4F support	**Dexis survey	Dexis KII
SSEA	9 countries (and 2 innovations from unknown country/countries). 32 innovations; 37 country-innovations	7 legacy, 14 CFI1, 13 CFI2 innovations	8 Wf 15 Ef 16 Wef 1 ND	8 women led, 6 no, 18 ND	2 terminated 8 TA only 22 grants (9 CFI1, 13 CFI2) (27 c-grants)	17 survey completed	15 KII
Bangladesh	ATEC Australia Int. Ltd.	1	Ef	No	grant	No	V
	Pumpkin Plus Agro Innovation	1	Wf	Yes	grant	Yes	Yes
Cambodia	ATEC Australia Int. Ltd.	1	Ef	No	grant	No	Yes
	Covestro	2	Ef	ND	grant	No	
	<i>Entrepreneurs du Monde</i>	2	Wf	ND	grant	Yes	
	Khmer Green Charcoal	1	Ef	Yes	grant	Yes	
India	Adaptive Symbiotic Technologies (AST)	legacy	Wf	ND	TA only	No	
	aQysta	1	Wef	Yes	grant	Yes	Yes
	<i>Center for Aquatic Livelihood Jaljeevika</i>	2	Wf	ND	grant	Yes	
	Claro Energy	1	Wef	No	TA only	No	
	Husk power systems	legacy	Ef	ND	TA only	No	
	Goat Trust (Nandinandan Breeds and Seeds)	1	Wef	No	grant	Yes	Yes
	<i>New Leaf Dynamic Technologies</i>	2	Ef	ND	grant	No	
	Onergy Solar (Punam Energy)	1	Wef	Yes	grant	Yes	Yes
	Oorja Development Solutions	1	Wef	Yes	grant	Yes	Yes
	Promethean Spenta Technologies	1	Ef	No	TA only	Yes	
	Rural Development Organization	1	Wef	Yes	TA only	No	
	<i>S4S Technology</i>	2	Ef	ND	grant	Yes	
	ZooFresh Foods	1	Wef	Yes	TA only	No	
Indonesia	aQysta Nepal	1	Wef	Yes	grant	Yes	v
	<i>Komodo water</i>	2	Wef	ND	grant	No	
	Sumba Sustainable Solutions	1	Wef	Yes	grant	No	Yes
	<i>Yayasan Rumah Energi</i>	2	Ef	ND	grant	Yes	
Laos	Covestro	2	Ef	ND	grant	No	
Myanmar	<i>Agrosolar (Agros. Pte Ltd.)</i>	2	Wef	ND	grant	No	
	<i>Techno Hill</i>	2	Wef	ND	grant	No	
	Tun Yat	1	Ef	No	TA only	No	
	<i>Village Link (MyVAS4Agri)</i>	2	Ef	ND	grant	Yes	
Nepal	aQysta	1	Wef	Yes	grant	Yes	v
	Gham power	1	Wef	No	grant	Yes	
	<i>Mandala Agrifresh</i>	2	Wef	ND	grant	Yes	
Thailand	<i>Recyclo</i>	2	Wef	ND	grant	No	
Vietnam	Covestro	2	Ef	ND	grant	No	
	<i>Egreen Technology Joint Stock Company</i>	2	Ef	ND	grant	Yes	
	Mimosa Technology	legacy	Wf	ND	Legacy	No	
ND	Sistema-Bio	legacy	Ef	ND	terminated	No	
	VIA	legacy	ND	ND	terminated	No	

Region	Country-innovation	WE4F history	c-focus *, **	women-led	WE4F support	**Dexis survey	Dexis KII
MENA	11 countries (incl. 1 unknown); 38 innovations; 59 country-innovations	0 legacy, 25 CFII, 15 CFII2	18 Wf 8 Ef 33 Wef	7 women led, 8 no, 23 ND	2 terminated 6 TA only 30 grants (18 CFII, 12 CFII2) (46 c-grants)	25 survey comple- ted	
Algeria	Green Eagle Tech	2	Wef	ND	grant	No	
Egypt	Abu Erdan DMCC	1	Wef	Yes	TA only	No	
	<i>Agrisolar</i>	2	Ef	ND	grant	No	
	Baramoda	1	Wef	No	TA only	No	
	Chitosan Egypt	1	Wf	Yes	grant	No	Yes
	EGYMAG Biotechnology	2	Wef	ND	grant	Yes	
	Green Eagle Tech	2	Wef	ND	grant	No	
	Integrated Renewable and Sustainable Communities (IRSC)	1	Wef	Yes	grant	No	Yes
	Irma & Co	2	Wf	ND	grant	Yes	
	Natagri	2	Wf	ND	TA only	Yes	
	<i>Raptor Engineering Supplies and Contracting</i>	2	Wef	ND	grant	Yes	
	Schaduf for Agriculture & Trade	1	Wef	No	TA only	No	Yes
	SuWaCo (Bena Foundation)	1	Wef	Yes	TA only	No	Yes
	The Platform for Smart Solutions	1	Wef	No	grant	Yes	Yes
Iraq	Albu Saif	1	Wf	ND	grant	No	
	Ainda Agricultural Center	1	Wef	ND	grant	Yes	
	Bahir Al Kamal	1	Ef	ND	grant	No	
	Burj Al Iraq	1	Wf	ND	grant	No	
	Dhiya Al Alamiyah	1	Wf	ND	grant	No	
	EGYMAG Biotechnology	2	Wef	ND	grant	Yes	
	Green scape	1	Wf	ND	grant	No	
	Green shovel (green scape)	1	Wf	ND	grant	No	
	Irma & Co	2	Wf	ND	grant	No	
	Nakhla company	1	Wef	ND	grant	Yes	
	Natagri	2	Wf	ND	TA only	Yes	
Jordan	Abu Erdan DMCC	1	Wef	Yes	TA only	No	
	Agritopia	2	Wf	ND	grant	No	
	EGYMAG Biotechnology	2	Wef	ND	grant	Yes	
	<i>Maan Society (Shabab Ma'an ..)</i>	2	Wef	ND	grant	Yes	
Lebanon	Agrisolar	2	Ef	ND	grant	No	
	Biomass	1	Wef	No	grant	No	Yes
	Compost Baladi	1	Ef	No	grant	Yes	Yes
	EGYMAG Biotechnology	2	Wef	ND	grant	Yes	
	Green Essence Lebanon	1	Wef	No	grant	No	
	Go Baladi / Hajjar Foods	1	Wef	Yes	grant	No	
	Irma & Co	2	Wf	ND	grant	Yes	
	Natagri	2	Wf	ND	TA only	Yes	
	Robinson Agri	1	Wef	Yes	grant	Yes	
Morocco	Agrisolar	2	Ef	ND	grant	No	
	Alvatech	1	Wef	No	TA only	No	
	<i>Biodôme</i>	2	Ef	ND	grant	No	
	Green Eagle Tech	2	Wef	ND	grant	No	
	<i>Green Watech</i>	2	Wf	ND	grant	No	
	High Atlas Foundation	1	Wef	Yes	grant	Yes	
	Mozare3 Agri-fintech	2	Wef	ND	grant	Yes	
	Sowit Maroc	1	Wef	No	grant	Yes	Yes
Palestine	Agritopia	2	Wf	ND	grant	No	
Sudan**	Agrisolar	2	Ef	ND	grant	No	

Region	Country-innovation	WE4F history	c-focus *, **	women-led	WE4F support	**Dexis survey	Dexis KII
	Green Eagle Tech	2	Wef	ND	grant	No	
	Hydroponics Africa	2	Wf	ND	grant	Yes	
	Mozare3 Agri-fintech	2	Wef	ND	grant	Yes	
	Schaduf for Agriculture and Trade	1	Wef	No	TA only	No	v
	<i>Sudagardlic</i>	2	Wf	ND	grant	Yes	
Syria	Schaduf for Agriculture and Trade	1	Wef	No	TA only	No	v
Tunisia	Irma & Co	2	Wf	ND	grant	Yes	
	Mozare3 Agri-fintech	2	Wef	ND	grant	Yes	
	Sowit Maroc	1	Wef	No	grant	Yes	v
ND	Spark Renewables	1	Ef	ND	terminated	No	
	SWME	1	Wef	ND	terminated	No	
SCA	6 countries 11 innovations (+1 unique in SCA but already present in Sudan/MENA); 12 country-innovations	2 legacy, 9 CF11, 1 CF12	6 Wf 2 Ef 4 Wef	0 women led, 0 no, 11 ND	0 terminated 3 TA only 10 grants (9 CF11, 1 CF12) (10 c-grants)	3 survey completed	
DRC	Kivu Green	1	Wf	ND	grant	No	
Kenya	Hydroponics Africa (also present in MENA/Sudan)**	2	Wf	ND	grant	Yes	
Mozambique	Rural Integrated Engineering	1	Wf	ND	grant	No	
S. Africa	COMACO	1	Wf	ND	grant	No	
	Meat Naturally	legacy	Wf	ND	TA only	Yes	
	Reel Gardening	legacy	Wf	ND	TA only	Yes	
Zambia	Solar Village	1	Wef	ND	grant	No	
	Sylva Food Solutions	1	Wef	ND	grant	No	
Zimbabwe	Farmhut Africa	1	Ef	ND	grant	No	
	Lanforce Energy	1	Ef	ND	grant	No	
	Powerlive	1	Wef	ND	grant	No	
	Zonful Energy	1	Wef	ND	grant	No	
TOTAL	26 countries (+ 4 country-innovations with country ND); 81 innovations 108 country-innovations	7 legacy, 55 CF11, 46 CF12	29 Wf 25 Ef 53 Wef 1 ND	15 women led, 14 no, 52 ND	9 terminated 17 TA only 60 grants (83 c-grants)	45 survey completed****	

*: Wf = Water focus; Ef = Energy focus; Wef = Water & Energy focus by country

** : where innovations operate in more than one country, they are counted for each country they operate in: country-innovations

***: One MENA innovation also operates in Sudan.

****: Each country-innovation is counted as survey.

Analysing the portfolio of the SSEA and MENA RIH (Annex 8, Table 32), it is found that the main differences between the RIH are:

- compared to SSEA, in MENA the number of CF11 grants is doubled; MENA has a few more countries, and many more country-innovations
- compared to SSEA, MENA has more innovations focussed on water, much less on energy (water and energy innovation focus is not much different); this difference is also reflected in the innovation types; in SSEA the most mentioned type is energy production & infrastructure, in MENA water-irrigation
- compared to SSEA, MENA has on average a lower funding amount for innovations; e.g., MENA has twice as many innovations for water-irrigation, but year 1 funding for water-irrigation innovation types is relatively low; and for year 1 energy – farm input innovation types, SSEA the funding is \$68,333/innovation (in fewer countries?) and for

MENA \$48,333, to conclude: SSEA generally commits larger grants than MENA, however: delayed disbursement of CFII grants is an issue in SSEA

Table 32: Innovations' gross sales (USD), by innovation, by country as of July 2022 (Gin4)

Country /RIH	Innovation, name	LOP target	year 1 target	year 1 result	year 1 target reached
Bangladesh /SSEA	ATEC Australia Int. Ltd.*	4,201,965	587,340	244,757	N
	Pumpkin Plus Agro Innovation	39,608	27,108	2,177	N
Cambodia /SSEA	ATEC Australia Int. Ltd. *	*		*	
	Khmer Green Charcoal	14,700	1,838	21,048	Y
India /SSEA	aQysta	65,000	150,000	0	N
	Goat Trust (Nandinandan Breeds & Seeds)	90,000	30,000	324,824	Y
	Onergy Solar (Punam Energy)	9,360,000	1,560,000	1,265,817	N
	Oorja Development Solutions	238,390	88,081	75,612	N
	Promethean Spenta Technologies	2,400,000	900,000	842,545	N
	Rural Development Organization	NAWP		0	ND
	ZooFresh Foods	7,540,000	5,040,000	2,271,336	N
Indonesia /SSEA	Sumba Sustainable Solutions	600,000	250,000	26,888	N
Myanmar /SSEA	Tun Yat	1,075,230	389,220	460,418	Y
Nepal /SSEA	aQysta	****			
	Gham power	866,000	300,000	135,418	N
SSEA		26,490,893	8,559,139	5,670,840	3/12
Egypt /MENA	Abu Erdan DMCC**	981,600	309,000	136,122	N
	Baramoda	2,478,591	529,791	947,394	Y
	Chitosan Egypt	3,309,200	875,000	755,793	N
	IRSC	1,431,966	315,837	252,321	N
	Schaduf for Agriculture and Trade	1,373,718	573,718	536,403	N
	SuWaCo (Bena Foundation)	3,073,716	56,777	59,968	Y
	The Platform for Smart Solutions	1,456,003	204,935	73,009	N
Jordan /MENA	Abu Erdan DMCC**	**		**	
Lebanon /MENA	Biomass	1,838,720	218,720	1,200,182	Y
	Compost Baladi	1,864,429	36,429	232,219	Y
	Go Baladi (Hajjar foods)	1,233,000	243,000	128,471	N
	Green Essence Lebanon	2,345,550	95,550	744,000	Y
	Robinson Agri	6,203,841	1,759,600	4,081,011	Y
Morocco /MENA	Alvatech	6,000,000	1,500,000	44,375	N
	High Atlas Foundation	3,861,900	620,100	257,342	N
	Sowit Maroc	1,271,288	167,298	382,132	Y
Tunisia /MENA	Sowit Maroc***	***		***	
MENA		38,723,522	7,505,755	9,830,742	7/15
Total		65,214,415	16,064,894	15,501,582	11/30

*: result combined Bangladesh & Cambodia

** : result combined Egypt & Jordan

***: result combined Jordan & Tunisia

****: result combined with India

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

The CFII funds disbursement is 28% but this is when just 2.5 months have passed since signing; it shows swift action once a Grant Authorization (GA) is signed. The same applies to the Iraq cohort: just 6 months underway since signing, and 40% of the funds are disbursed.

Table 33: Innovations' end user targets and results, by innovation, by country as of July 2022

Country /RIH	Innovation, name	LOP target	year 1 target	year 1 result	year 1 target reached	Year 1 within 80% of target
Bangladesh /SSEA	ATEC Australia Int. Ltd.*	9,135	1,260	2,192	Y	Y
	Pumpkin Plus Agro Innovation	7,350	4,200	3,108	N	N
Cambodia /SSEA	ATEC Australia Int. Ltd. *	*		*		
	Khmer Green Charcoal	63,000	7,875	15,750	Y	Y
India /SSEA	aQysta	10,000	2,500	967	N	N
	Claro Energy	60,000	20,000	21,100	Y	Y
	Goat Trust (Nandinandan Breeds & Seeds)	42,000	21,000	21,000	Y	Y
	Onergy Solar (Punam Energy)	144,000	24,000	37,558	Y	Y
	Oorja Development Solutions	32,940	5,400	4,992	N	Y
	Promethean Spenta Technologies	19,800	6,600	8,166	Y	Y
	Rural Development Organization	11,167	20,000	5,167	N	N
	ZooFresh Foods	5,500	1,500	470	N	N
Indonesia /SSEA	Sumba Sustainable Solutions	7,500	2,500	2,080	N	Y
Myanmar /SSEA	Tun Yat	9,000	3,500	24,625	Y	Y
Nepal /SSEA	aQysta	****	2,500			
	Gham power	50,000	10,000	10,791	Y	Y
SSEA		471,392	132,835	157,966	8/14	10/14
Egypt /MENA	Abu Erdan DMCC**	13,045	1,545	732	N	N
	Baramoda	13,090	2,460	995	N	N
	Chitosan Egypt	19,819	8,365	23,424	Y	Y
	IRSC	14,058	3,995	2,565	N	N
	Schaduf for Agriculture and Trade	20,150	4,150	32	N	N
	SuWaCo (Bena Foundation)	33,000	1,500	1,250	N	Y
	Spark Renewables	90,000	21,000	ND		
	The Platform for Smart Solutions	183,303	1,089	3,676	Y	Y
Jordan/MENA	Abu Erdan DMCC**	**		**		
Lebanon /MENA	Biomass	11,991	7,690	6,496	N	Y
	Compost Baladi	100,089	5,369	19,244	Y	Y
	Go Baladi (Hajjar foods)	8,715	215	1,578	Y	Y
	Green Essence Lebanon	7,811	11	5,948	Y	Y
	Robinson Agri	10,485	2,500	2,200	N	Y
Morocco /MENA	Alvatech	9,000	2,000	110	N	N
	High Atlas Foundation	132,000	12,000	12,514	Y	Y
	Sowit Maroc	71,204	19,500	15,624	N	Y
Tunisia/MENA	Sowit Maroc***	***		***		
MENA		737,760	93,389	96,388	6/16	10/16
Total		1,065,152	225,135	254,354	14/30	20/30

*: result combined Bangladesh & Cambodia; **: result combined Egypt & Jordan; ***: result combined Jordan & Tunisia; ****: result combined with India Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

Table 34: Money not disbursed per innovation SSEA CFII

Innovation Organization	Unspent Year 1 (USD)
aQysta Nepal Pvt. Ltd	20,000
ATEC Australia International Limited	30,000
Gham Power	25,000
Khmer Green Charcoal	15,000
Oorja Development Solutions	60,000
Promethean Spenta Technologies Pvt Ltd	122,000
Punam Energy Pvt. Ltd. (Onergy Solar)	25,000

Innovation Organization	Unspent Year 1 (USD)
Rural Development Organization	105,000
Sumba Sustainable Solutions	22,000
Total	302,000
Year 1	1,335,700
Disbursed	911,700

Table 35: WE4F grant funds committed, targeted and disbursed in year 1 (USD), from inception until August 2022 (received October 2022)

Region/cohort	no. grantees	no. country grantees	total funds committed (\$)	fund targets year 1 (\$)	funds disbursed year 1 (\$)	% disbursed vs target for year 1
SSEA CFI1	9	12	1,964,200	1,335,700	911,700	68%
MENA CFI1	14	31	2,380,000	1,160,000	1,360,000	117%*
MENA CFI2	12		1,720,000	946,000	516,000	55%
Iraq CFI1	8	8	860,000	817,000	344,000	42%
Total	48		6,924,200	4,258,700	3,131,700	74%

Source: Annual report data (Final WE4F Annual Report Data_02_14_2022.xlsx, Budget Tracker received October 2022)* Updated based on the email. This was new information and not included in the document sent by Lanakila McMahan. Note: The total amount paid to date is \$1,360,000. \$200,000 of that amount is Y2 milestones.

In SSEA the committed funding amount per CFI1 grant (innovation) is 217,911 USD, whereas in MENA (CFI1 including Iraq) it is a much smaller amount of 154,286 USD. Likewise, in SSEA the amount per country-innovation is 163,683 USD/country, in MENA (CFI1 including Iraq) nearly half of this, at 86,077 USD/country. At the time of record (October 2022) there is evidence of gaps between the planned and disbursed funds particularly in MENA CFI2 (just starting), in MENA/Iraq CFI1 (understandably, as it started later), and in SSEA CFI. Especially in SSEA this gap is of concern: of the funds committed for year 1 (in the table: 'fund targets year 1), 32% (424,000 USD) had not been disbursed. In the CFI1 cohort there are 9 innovations that are awaiting undisbursed funds ranging from 15,000 to 122,000 USD; the full breakdown is shown in Annex 8 (Table 32).

Figure 4 shows the money committed and the funds that were actually disbursed for CFI1 innovations in SSEA and MENA.

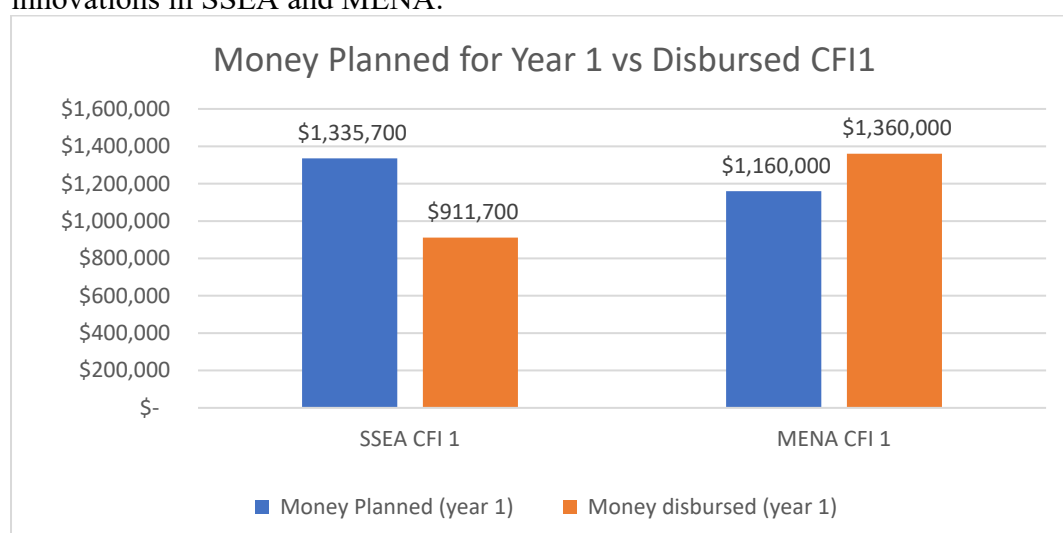


Figure 4: Amount awarded vs disbursed in year 1, for CFI1 (tbd)

Source: Annual report data (Final WE4F Annual Report Data_02_14_2022.xlsx) and fully executed grant agreements

In SSEA 68% of the CFI1 planned funds for year 1 were disbursed; in MENA it was 117%. This 117% is due the fact that the actual disbursement includes 200,000 USD of year 2.

Table 36: CFII grants disbursed in year 1 (USD), by region, by innovation type, against end user numbers

Innovation type	SSEA end user hh members (n=12)	SSEA funds disbursed (\$) (n= 9)	SSEA \$/ end user hh member	MENA end user hh members (n=14)	MENA funds disbursed (\$) (n=14)	MENA \$/ end user hh member
Energy – Production & infrastructure	22,822	252,500	11.1	8,513	205,000	24.1
Energy – Farm Input	7,359	205,000	27.9	50,159	290,000	5.8
Digital solutions	56,886	187,000	3.3	20,032	270,000	13.5
Water – Irrigation	59,625	130,000	2.2	2,232	195,000	87.4
Water – Reuse in agriculture	0			1,250	30,000	24.0
Energy – Agricultural processing	8,166	110,000		1,578	140,000	88.7
Other	3,108	27,200	8.8	12,514	230,000	18.4
Water – Quality/salinity				110	0	
Water – Reuse in agriculture	0			1,250		
Total results year 1	157,966	911,700		96,388	1,360,000	
Innovation targets year 1	132,835			93,389		
Proportion of year 1 end user target	113%			105%		
Funding target year 1		1,335,700			1,160,000	
Proportion of year 1 funding disbursed		68%			117%	

Source: Annual report data (Final_WE4F Annual Report Data_02_14_2022.xlsx)

*: does not include disbursements for Iraq CFII and MENA CFII as we do not have KPI2 results for those

The first-year data show that the numbers of end users exceed the aggregated target by 19% in SSEA and by 3% in MENA. There is further discussion of end user targets and the prospect of the Program reaching the LOP target of 2.5 million in the section on sustainability.

Table 37: WE4F committed funding and overall funding (USD), for MENA CFII

Innovation name	WE4F committed funding (\$)	proposed funding from other sources (\$)	% from WE4F
Abu Erdan	100,000	1,600,000	6%
Alva Tech	-	-	-
Baramoda	125,000	2,480	5%
Biomass SAL	200,000	0	100%
Chitosan	140,000	1,065,366	12%
Compost Baladi	240,000	578,500	29%
Go Baladi	200,000	888,000	18%
Green Essence	200,000	2685,000	7%
High Atlas Fntn.	160,000	220,000	42%
IRSC	120,000	1,124,075	10%
The Platform	180,000	1,758,673	9%
Robinson Agri	240,000	5,511,381	4%
Schaduf	240,000	1,060,000	18%
SOWIT	200,000	408,000	33%
SuWaCo	125,571	129,429	49%
Total	2,370,571	17,030,904	15%

Source: Annual report data From AWP for all CFII MENA (Final_WE4F Annual Report Data_02_14_2022.xlsx)

The information on funding shows that WE4F's part in the innovations' funding is very variable, and certainly not the largest part; one exception aside: the funding is between 4% and 49% of what is proposed funding from other sources (over the total, WE4F funding is 15%).

Numbers of countries: country-innovations and innovation focus

In this section the support for innovations in the developing regions identified, the numbers of countries involved, the range of focus areas and other characteristics.

At this stage it is important to make a distinction between an innovation (with in most cases a WE4F grant agreement) and a country-innovation (this is also explained in the Definitions before the Introduction of this report).

Table 40 presents innovation numbers, by region, and Table 41 shows the innovation types for each region. This is to demonstrate how the innovations are relevant for each country. See Annex 8 (Table 31) For a complete list of country-innovations.

Table 38: Innovation numbers: total, grants only, CFII only, by region

Region	Countries	Total no. of innovations	Grants	CFII grants
SSEA	9 *	32	22	9
MENA	10*	38	30	18
SCA	6	11	10	9
Total	>25*	81	61	36

*: in SSEA as well as in MENA, each has 2 country-innovations with the country known

Source: WE4F Innovator List_As of July22.gsheet

Table 39: Country-innovations numbers: country-grants and -funding, and country-innovation focus

Region	countries	total no. of country-innovations	country-grants*	CFII country-grants	country-innovation focus		
					water	energy	water & energy
SSEA	9 **	37	27	11	5	15	16
MENA	10**	59	46	18	18	8	33
SCA	6	12	10***	9	6	2	4
Total	>25**	108	83	38	29	25	53

*: as country-innovations, country-grants multiply grants numbers by the number of countries

** : in SSEA as well as in MENA, each has 2 country-innovations with country

*** ND

Source: WE4F Innovator List_As of July22.gsheet

Both SSEA and MENA have somewhat similar numbers of countries (9 vs 10). The water and energy innovation focus are the most prevalent in SSEA and MENA; in MENA this is 56% of the country-innovations, in SSEA less, as energy focus innovations are almost as prevalent. In SCA the water innovation focus is the most prevalent with water & energy as a good second. Considering the context, it is unsurprising that in MENA (with many semi-arid areas) the water-related innovations are more prevalent. This is also clear in the next table.

Table 40: Representation of innovation type for region

Innovation Type	SSEA	MENA	SCA
Water – Reuse in agriculture	1	1	0
Digital Solutions	6	5	3
Water – Irrigation	6	12	3
Energy – Energy production and infrastructure in agriculture	8	4	0
Other	2	3	1
Energy – Agricultural processing	2	2	1
Water – Quality/salinity	0	2	0
Energy – Farm input	3	6	0
Energy – Aggregation and storage in agriculture	3	0	1
Water – Capture/storage in agriculture	0	1	2
Energy – Farm production	0	1	0
Water treatment	0	0	0
ND	1	1	0
Total	32	38	11

In SSEA, the greatest number of innovations are in energy production and infrastructure in agriculture, water – irrigation, and digital solutions. In MENA, water – irrigation stands out above all others.

Investment facilitation and other enabling environment results (EQ1h)

Gin20 (ext. partnerships), Gin21 (investment ready), Gin1 (innovation delivery), Gin2 (new market/country), Gin15 (accessibility of the innovation and inputs, reduced bureaucratic hurdles).

Gin40 – Number of contacts of potential investors provided to innovations by WE4F

Gin41 – Share of innovations that made use of the financial guarantee instruments

To look at investment facilitation it is important to see how many contacts were made due to the innovation, for SSEA it was 51, and for MENA it was 29 (Gin40). This information was collected from 12 innovations in MENA and 14 in SSEA.

Only 3 innovations in SSEA used the financial guarantee mechanism (Gin41) There were no innovations in MENA that reported use of financial guaranteed mechanism.

Below table shows what innovations had to say about investment facilitation, and about funding sources and amounts.

Table 41: Investment Facilitation, how it helped and funding amounts (USD), by region (EQ1h)

Region	Investment facilitation	Funding amounts /source (\$)				
		private loans	private equity	private grant	public grant	self-funding
SSEA (n=5)	10 respondents described the help they got: suggestions / new ideas / advice, emails, connections. On the effect 4 responses: 1 with effect, 2 not, 1 pending					50-100k
		50-100k	0	25-50k	<25k	<25k
				<25k		
			>200k	<25k		
MENA (n=6)	7 respondents described the help they got: emails, networking, investment readiness, explaining different potential partners, help to make pitches to potential, “investment readiness teaser”, introductions also to other regions. On the effect 2 responses: “it reshaped the company”, and “it secured major funding”	>200k	0	0	0	>200k
		0	0	0	0	0
				100-200k		
		>200k			>200k	
		0	0	0	0	0
		>200k			100-200k	
		0	0	>200k	<25k	0

Source: Dexis innovation survey (Innovation survey 7 11 22.xlsx)

The innovations’ responses are mostly appreciated about WE4F’s investment facilitation activities, and some note a positive effect, some not; it is however too early to say, and too few data.

Table 42: Numbers of end users using financing mechanisms for the innovation, by region (Gin28)

Region	total number of end users in Q1 and Q2	end users that received financing	% Of Q1 and Q2	% Of females	% Of end users in Q1
SSEA (n=3)	149,221	2,910	100%	41%	47%
MENA (n=0)	69,343	ND	-	-	-
SCA	NYM	NYM	-	-	-
Total	218,535	2,910	1.42%		

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx); the SSEA data is from 3 innovations (Onergy Solar, ATEC, aQysta).

Table 43: No. of countries participating, by region

Region	Countries	no. of country-innovations*	country-innovation focus			
			water	energy	water & energy	total
SSEA	Bangladesh	2	1	1	0	2
	Cambodia	4	1	3	0	4
	India	7	2	4	7	13
	Indonesia	4	0	1	3	4
	Laos	1	0	1	0	1
	Myanmar	3	0	2	2	4
	Nepal	3	0	0	3	3
	Thailand	1	0	0	1	1
	Vietnam	2	1	2	0	3
	ND**	0	0	1	ND	2
Total	9 countries	27	5	15	16	37
MENA	Algeria	1	0	0	1	1
	Egypt	8	3	1	9	13
	Iraq	10	7	1	3	11
	Jordan	3	1	0	3	4
	Lebanon	8	2	2	5	9
	Morocco	5	0	1	5	6
	Palestine	1	1	0	0	1
	Sudan	5	2	1	3	6
	Syria	0	0	0	1	1
	Tunisia	3	1	0	2	3
	ND	2	1	2	1	4
Total	11 countries	46	18	8	33	59
SCA	DRC	1	1	0	0	1
	Kenya	1	1	0	0	1
	Mozambique	1	1	0	0	1
	S. Africa	1	3	0	0	3
	Zambia	2	0	0	2	2
	Zimbabwe	3	0	2	2	4
Total	7 countries	9	6	2	5	12
Total	26 countries	82	29	25	54	108

*: country-innovations multiply when operating (re. the innovation) in more than one country

** : both legacies are terminated; for only one the focus was indicated

Source: WE4F Innovator List as of July22.gshee

Table 44: Innovations' annual targets numbers of end user household members, all innovations (n=81), by region

Region	LOP*	year 1 targets*	year 2 targets*	year 3 targets*
SSEA*	2,215,009	933,809	1,545,092	158,207
MENA**	1,665,824	222,999	528,572	762,814
SCA	833,430	400,360	412,760	415,660
Total	4,714,263	1,557,168	2,486,424	1,336,681

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx) AWP from innovators

*: LOP target is the sum of each year. In this table it is lower than the sum of three year-targets, because year 2 and year 3 targets were adjusted (upwards or downwards) by the Innovations themselves. Based on year 1 performance

** : LOP target is higher than the sum of three year-targets, because year 1 target (here) was adjusted downwards.

Table 45: Innovation companies and where they are incorporated

Region	Yes: works in same country as incorporated	No: does not work in the country it is in incorporated	ND	Total
SSEA	23	6	3	32
MENA	27	2	9	38
SCA	8	1	2	11

Source: <https://we4f.org/innovators>

Table 46: Number of end users that participated in the survey

End User Survey Responses	SSEA	MENA
Total number of responses	143	20
Number of female respondents	36	0
Number of male respondents	107	20

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Table 47: Participating countries end user respondents

Countries	SSEA	MENA
Bangladesh	27	0
Egypt	0	19
India	72	0
Nepal	33	0
No Response	11	1

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For now, the end users have been surveyed from Bangladesh, Nepal, India and Egypt.

Table 48: Participating innovations end user respondents: by innovation

Countries	SSEA	MENA
Chitosan	0	17
IRSC	0	1
Platfarm	0	1
Pumpkin Plus	26	0
Barsha pump	30	0
Oorja Development,	34	0
Goat Trust	38	0
No response	15	1

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Table 49: Food processed (t) by country (KPI4)

Region	Innovation name	Food processed (t)	%	Type of food/service
India /SSEA	Promethean Spenta Technologies	1,942	97%	Small-capacity milk chillers, digital milk testing equipment, links to dairy processor/buyers (data-driven decision making, transparency)
Indonesia /SSEA	Sumba Sustainable Solutions	26	1.3%	Solar power for mills/grinders for rice, corn, coconut, coffee
Lebanon /MENA	Go Baladi / Hajjar Foods	39	1.9%	Goat milk and cheese
Total		2,007	100%	

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

Table 50 presents the information from the end user survey regarding impacts of the innovation.

Table 50: Impacts reported (SSEA)

Impact	Increase	Decrease	No effect
Variety of different crops grown on your farm	22	0	107
Variety of animal species used in husbandry activities	2	0	121
Quality of soil, soil health on your farm	1	0	124
The number or variety of birds and insects in your local area	9		120
Use of ground- or surface water	19	0	110
Pollution of ground- or surface water	0	1	123

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Table 51 presents production data from the same producer types, now broken down by innovation focus.

Table 51: Food produced (t, year 1) by innovation focus, by producer types

Innovation focus	Smallholder farmers		Medium & larger scale farmers		Companies		Total production (t)
	Production (t)	%	Production (t)	%	Production (t)	%	
Water	328	100%	0	0%	0	0%	328
Energy	2,073	88%	138	6%	156	7%	2,367
Water & energy	320,944	27%	831,016	70%	35,906	3%	1,187,866
Total	342,633	27%	831,154	70%	36,062	3%	1,209,849

*Information from 21 innovations (9 SSEA, 12 MENA) Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

Table 51 shows that water & energy focussed innovations work more with medium & larger scale farmers (in MENA especially), and this produce 69% of the total production. Unfortunately, this data may be incomplete.

Table 52 presents the same water saved, by end user type, but now by innovation focus.

Table 52: Water saved (l, year 1), by end user type, by innovation focus (KPI6)

Innovation focus	Smallholder farmers		Medium & larger scale farmers		Companies	
	Volume (l)*	%	Volume (l)*	%	Volume (l)*	%
Water	116,162,838	0%	NAWP	0	NAWP	0
Energy	40,528,000	29%	0		0	
Water & energy	9,764,200	71%	39,917,000	100%	3,844,000	100%
Total	138,167,000	100%	39,917,000	100%	3,844,000	100%
Proportion	76%		22%		2%	

*Information from 9 innovations (1 SSEA, 8 MENA)

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

*Rounded to the nearest thousand

Table 53: Breakdown of end user targets and results, per innovation

Innovation	LOP target	Year 1 target	Year 1 result	Year 1 target met
SSEA (n=6)	7,247,990	1,588,304	10,179,541	4 yes, 2 no
aQysta	37,500	10,000	10,240	yes
Goat Trust (Nandinandan Breeds and Seeds)	50,000	150,000	143,418	no
Onergy Solar (Punam Energy)	5,760,000	960,000	8,791,152	yes
Oorja Solutions	608,178	92,148	64,182	no
Promethean	100,000	30,000	194,560	yes
Rural Development Organization	692,312	346,156	975,989	yes
MENA (n=7)	150,231,444	34,173,862	13,728,834	4 yes, 3 no
Abu Erdan	490,556	40,000	114,566	yes
Go Baladi / Hajjar Foods	150,400	-	29,283	yes
Green Essence	3,644,299	682,500	1,327,680	yes
IRSC	9,545,825	2,197,250	4,633,600	yes
Platform, The	37,375,875	10,241,152	1,693,143	no
SOWIT Maroc	98,505,143	21,000,000	5,924,179	no
SuWaCo (Benea Foundation)	519,346	12,960	6,384	no
Total (n=13)	157,479,434	35,762,166	23,908,376	8 yes, 5 no

Table 54: Changes in farming practice, as result of the innovation

Response	SSEA
Added or changed irrigation system: ...	55
Other (mostly improved production -18)	31
Changed use of fertilizer / type of fertilizer (that includes biofertilizer, also bio-slurry, compost enriched with bio-slurry, etc.): by type:	25
Changed the volume of water used: ...	24
Changed the number of crops and/or varieties: ... (increased / reduced)	18
Changed the size the crop area: ... (increased / reduced)	15
Changed the variety of agricultural activities: ... (increased / reduced)	11
Get advice to decide when to plant / changed sowing dates or seasons: ...	4
Crop management & weed control: ...	3
Added or changed storage or refrigeration to reduce crop losses:...	0
Other power source for land preparation: ...	0
Shifted to organic and regenerative farming	0

Table 55: Water capture/storage, reuse/treatment, consumption/irrigation (EQ1e)

Country/ region	country-innovation	capture/ storage water	reuse/ treatment	reduce water use	irrigation	other	none
Cambodia /SSEA	Khmer Green Charcoal						v
India /SSEA	Goat Trust (Nandinandan Br.&Seeds)			v			
	Onergy Solar (Punam Energy)			v	v		
	Oorja Development Solutions				v		
	Promethean Spenta Technologies						v
Indonesia /SSEA	aQysta Nepal				v		
	Gham power	v		v	v		
Egypt /MENA	The Platform for Smart Solutions			v	v	v	
Lebanon /MENA	Compost Baladi	v			v		
	Robinson Agri			v	v		
Morocco /MENA	High Atlas Foundation	v		v	v		
	Sowit Maroc				v		

Source: Dexis innovation survey (Innovation survey 7 11 22.xlsx)

Table 56: Numbers of end users using financing mechanisms for the innovation, by region (Gin28)

Region	total number of end users in Q1 and Q2	end users that received financing	% Of Q1 and Q2	% Of females	% Of end users in Q1
SSEA (n=3)	149,221	2,910	100%	41%	47%
MENA (n=0)	69,343	ND	-	-	-
SCA	NYM	NYM	-	-	-
Total	218,535	2,910	1.42%		

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx); the SSEA data is from 3 innovations (Onergy Solar, ATEC, aQysta).

As part of the end user survey, it was discovered that in SSEA (n=143) no end user secured financing for the innovation (93% said no, 10 did not respond, nobody said yes).

Table 57: End users reporting whether their income has increased as result of the innovation, by gender

Response (n=163)	SSEA	MENA
No	3	0
Yes	111	19
% Yes	97%	100%
Respondent total	114	19
No response	29	1

*the yes for MENA was attributed to polluted water

Source: Cleaned September 20 2022 MENA End User WE4F Evaluation, cleaned tables end user data for SSEA September 19 2022

Table 58: Jobs created through Program support, by innovation focus (Gin10)

Innovation focus	Total jobs	Female jobs	% Of jobs for women
Water	4	0	0%
Energy	24	10	42%
Water & energy	184	29	16%
Total	212	39	18%

*information from 28 innovations (13 SSEA, 15 MENA)

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

Table 59: GHG emission saved (tCO2e year 1) by region (Gin6)

Region	Total tCO2e	% From women	% From smallholders
SSEA (n=9)	66,232	55%	100%
MENA (n=7)	56,953,277	20%	16%
Total (n=16)	57,019,519	20%	16%

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx)

Table 60: Range of performance for end users (KPI2) and gross sales (Gin4)

Comparison to Year 1 Target	KPI2	Gin 4	SSEA (KPI2)	SSEA (Gin4)	MENA (KPI2)	MENA (Gin4)
Surpassed Target by over 100%	6	8	1	2	5	6
Surpassed Target by 0-100%	7	3	6	1	1	2
Missed Target by 0-50%	7	7	2	3	5	4
Missed Target by 51-100%	7	9	3	6	4	3
Total	27	27	12	12	15	15

Source: WE4F Admin data (MENA, SCA SSEA compiled data.xlsx) and Innovations AWP

ANNEX 9: COMMENTS ON INDICATORS

Table 63 discusses the indicators and the description provided. This table uses the WE4F MEL training and the WE4F Full indicator list. The training goes in-depth on sampling, data collection and -management, and on the indicators: how to use them to calculate impact. The Evaluation discusses the indicator information and offers suggestions, to make the finding, reading, and understanding of indicators more accessible.

Table 61: Comments on indicators

#	Keywords	WE4F description	Recommended alternative (targets from Oct. 2022)
	General	Indicator descriptions lack details, e.g., units and (baseline, target) values (details kept in different places). The terminology to stakeholder-related units is confusing. Looking at the data, some indicators have considerably changed (e.g., Gin33).	
KPI1	Profit	Innovator successfully marketed their climate friendly, energy and/ or water efficient innovations with profit	KPI1 - Fraction of innovations (f,m) (in %) that makes a profit* from marketing WE4F supported innovations; baseline 0%, target: 8% of innovations, of which ¼ women-led) *: counting as 'making profit' is when the profit passes $\geq 8\%$ EBITDA margin = EBITDA (earnings before interest, tax, depreciation & amortization) / Total Revenue. Earnings = revenue minus expenses
KPI2	End users	No. of smallholder farmers and other end users using energy or water-efficient WE4F innovations in their activities	KPI2 – No. of end user household members* (f,m), by -household (hh) income quintiles** using energy or water-efficient WE4F innovations. *: this is a number obtained by multiplying end users with an average household size (national, regional, or rural household size?). **: 5 quintiles: i) ...; ii) ...; iii) ...; iv) ...; v) ... (define); (Q1, 2 are the poorer farmers, Q3, 4, & 5 better off) RIH LOP targets: SSEA: 1,000,000; MENA: 750,000; SCA: 1,000,000 Year 1 targets: SSEA 70,000; MENA 37,500 The gender disaggregation here is linked to household members' gender but linked to the innovation's gender (then multiplied) NB: <i>program</i> LOP target (originally 2,400,000, now 2,500,000) is lower than total of RIH targets (source: L. McMahan)
KPI3	Food produced	Total mass of food produced as a result of WE4F innovations	KPI3 - Food produced (t) as a result of WE4F innovations, by end user type*; baseline: 0 t; *: types: i) smallholder farmers; ii) larger farmers; iii) small companies; vi) other companies; v) coops RIH LOP targets: SSEA: 3,000,000 t; MENA: 2,025,000 t; SCA: 1,300,000 t Year 1 targets: SSEA 170,000 t; MENA: 101,250 t Recommendation: Recalibrate farmer end user types (smallholder vs larger farmers), taking into account national or local agroclimatic contexts in the countries/regions.
KPI4	Food processed	Total food processed as a result of WE4F innovations, <i>by end user type</i>	KPI4 - Food processed (t) as a result of WE4F innovations, by end user type*; baseline: 0 t RIH LOP targets: SSEA: 100,000 t; MENA: 810,000 t; SSEA: 475,200 t; Year 1 target: SSEA: 1,500; MENA: 40,500 t *: types: i) smallholder farmers; ii) other farmers; iii) small companies; vi) other companies; v) cooperatives
KPI5	Energy saved	Total energy saved in the food value chain as a result of the use of WE4F innovations	KPI5 - Total energy saved* (kWh) by end user type** as result of the use of WE4F innovations; baseline: 0 kWh RIH LOP targets: SSEA: 400,000,000 kWh; MENA: 20,000,000 kWh *: saved compared to alternative technology, or practice before the innovation was used; **: types: i) smallholder farmers; ii) other farmers; iii) small companies; vi) other companies; v) cooperatives

#	Keywords	WE4F description	Recommended alternative (targets from Oct. 2022)
KPI6	Water saved	Total volume of water consumption reduction in the food value chain as a result of WE4F innovations	KPI6 - Total water consumption reduction* (l) by end user type** as result of the use of WE4F innovations; baseline: 0 l RIH LOP targets: SSEA: 1,000,000,000 l; MENA: 750,000; SCA: 5,000,000 l Year 1 targets; SSEA 6,000,000 l; MENA: 37,968,750 l *: saved in irrigation: compared to alternative technology, or practice before innovation was used; saved in water storage: storage capacity x times filled x % used in agriculture; saved in water re-use/ treatment: water re-used or treated, used in agriculture; saved in aquaculture/water re-use: water input into - water released + water used for irrigation **: types: i) smallholder farmers; ii) other farmers; iii) small companies; vi) other companies; v) cooperatives
KPI7	Income	No. of smallholder farmers and other end users that experience an increase in income	KPI7 – No. of end user farmers (f,m), by -household (hh) income quintiles* that experience an increase in income, <i>multiplied by</i> av. hh size/country; baseline: 0; 30% female RIH LOP targets: SSEA: 400,000; MENA: 57,500; SCA: 100,000 Year 1 targets: SSEA 50,000; MENA 15,000
KPI8	Monitoring tools, methods	Share of innovators a.o. stakeholders using tools, methods, or processes to monitor the protection of water or biodiversity	KPI8 – Share of innovations using tools, methods, or processes to monitor the protection of water or biodiversity. Target: 80% NB: other stakeholders is not very specific. (this is a RIH summary indicator to be found in RIH reporting)
KPI9	Investment (outcome 2)	Value of investment in US Dollars that WE4F innovators have mobilized from external sources	KPI9 – Value of investment (\$) by investment type* that WE4F innovations have mobilized from external sources; baseline: \$0 *: types: i) public/cash, ii) public/in-kind; iii) private/cash, iv) private/in-kind; v) unknown RIH LOP targets: SSEA: \$20,000,000; MENA: \$7,500,000; SCA: \$7,500,000. Year 1 targets: SSEA: \$7,500,000; MENA: \$300,000
KPI 10	Lessons adoption	No. of strategies, guidelines, projects of international, regional, local organizations adopting, disseminating lessons from WE4F publications, events, presentations	KPI10 – No. of strategies, <i>standards/regulations</i> , guidelines, or projects of international, regional, local organizations adopting, disseminating lessons from WE4F publications, events, or presentations
Gin4	Gross sales	Innovators' gross sales in the field of WE4F	Gin4 – Innovations' gross sales from marketing WE4F supported innovations; baseline: \$0; RIH LOP targets: SSEA: -; MEA: -; SCA \$2,250,000
Gin6	GHG emission reduction	Total GHG emission saved per year by end users through use of products/services of WE4F innovators	Gin6 – Total GHG emission (tCO ₂) saved* by year by end user type** and -gender, through use of WE4F innovations; *: standard tool: CLEER; **: types: i) smallholder farmers; ii) other farmers; iii) small companies; vi) other companies; v) cooperatives baseline: 0 tCO ₂ , RIH LOP targets: SSEA: 200,000 tCO ₂ , MENA 2,530 tCO ₂ ; SCA: 3,444 tCO ₂
Gin10	Jobs	No. of new jobs created in WE4F innovator companies	Gin10 – No. of new jobs created in WE4F innovation companies; baseline: 0 jobs, target: 100 jobs/country-innovation
Gin20	Innovation partnership	No. of external partnerships formed by innovators	Gin20 - No of external partnerships formed by innovations (no change)
Gin27	RIH partnership	No. of external partnerships formed by RIH	Gin27 – No. of external partnerships formed by RIH (no change)
Gin28	End user financing	No. of end users using financing mechanisms adapted or created through WE4F engagement	Gin28 – No. of end user farmers (f,m) by -household (hh) income quintiles* using financing mechanisms adapted or created through WE4F engagement, <i>multiplied by</i> av. hh size/country; baseline: 0; target: t.b.d. *: quintiles 1 and 2
Gin33	Innovation co-funding	Share of co-funding provided by innovators to match grant for developing/advancing innovation	Gin33 - Share of innovations' own co-funding (%) to match WE4F grant

#	Keywords	WE4F description	Recommended alternative (targets from Oct. 2022)
Gin40	Investor contacts	No. of contacts of potential investors provided to innovators	Gin40 – No. of contacts of potential investors provided to innovations (not changed)
Gin41	Financial guarantee instruments	Share of innovators that made use of the financial guarantee instruments	Gin41 - Share of innovations that made use of the financial guarantee instruments (not changed)
Gin45	Area improved	No. of hectares under improved management practices	Gin45 - Area (ha) under improved management practices as a result of WE4F innovations; baseline: 0 ha RIH LOP targets: SSEA: -; MEA: -; SCA 500,000 ha

Sources: WE4F MEL Training August 2022.pptx; WE4F Full PIRS_July22.docx; WE4F KPI PIRS_July22.docx WE4F PMEP_July22.doc; USAID RIH Targets_Oct2022

New indicators from 2021 Annual Report

Innovations set their own targets as part of indicators that *look like* some of the WE4F indicators. For example, WE4F measures the total number of end users in KPI2, whereas innovations measure their results against their own targets.

In its annual report 2021¹⁰⁶ the WE4F program suggests additional indicators, which are now added:

1. Quality of service score; target: 80% in the categories “very” a “extremely” positive/effective (assuming score 8/10 or higher) – in section 3.3 on Effectiveness
2. Proportion of innovations reaching their end user targets; targets: i) 40% reach within 80% of their own targets, and ii) 10% of innovations reach >100,000 customers/end users.

¹⁰⁶ WE4F annual report 2021, p7 for the first indicator, p47 for the second indicator. <https://we4f.org/wp-content/uploads/2022/05/WE4F-2021-Annual-Report.pdf>

Table 62: Indicator updated targets (source: USAID RIH Targets Oct2022.gsheel)

	SC Africa RIH			MENA RIH			SSE Asia RIH			USAID Secretariat
	CY21	CY21 + CY22	LOP	CY21	CY21 + CY22	LOP	CY21	CY21 + CY22	LOP	LOP target revised
KPI1	0%	8%	8%	8%	8%	8%	0%	-	8%	8% (1/4 women)
KPI2	0	200,000	1,000,000	37,500	225,000	750,000	70,000	X	1,000,000	2,500,000
KPI3	0	264,000	1,300,000	101,250	607,500	2,025,000	170,000	X	3,000,000	5,500,000
KPI4	0	95,040	475,200	40,500	243,000	810,000	1,500		100,000	2,125,000
KPI5	-	-	-	-	-	400,000,000	-	-	20,000,000	675,000,000
KPI6	0	1,000,000	5,000,000	37,968,750	227,812,500	750,000,000	6,000,000	-	1,000,000,000	2,000,000,000
KPI7	0	20,000	100,000	15,000	90,000	57,500	50,000	-	400,000	557,500
KPI8	0%	80%	80%	0%	80%	80%	80%	80%	80%	80%
KPI9	-	250,000	\$7,500,000	\$300,000	\$1,500,000	\$7,500,000	\$7,500,000	-	\$20,000,000	\$34,000,000
Gin4	\$250,000	\$1,000,000	\$2,250,000	-	-	-	-	-	-	\$75,000,000
Gin6	-	500	3,444	320	900	2,530	690	2,071	200,000	500,000,000
Gin45		200,000	500,000	-	-	-	-	-	-	500,000

The total of RIH targets does not add up to the USAID target, in most cases the RIH targets total is higher because some are expected to miss their targets; sometimes lower because they haven't set their targets yet (re. innovations' targets). In general, 3-step process:

Step 1: ToC phase, high-level program targets, based on work of Syspons in facilitation sessions to make the ToC.

In a political combination, some targets lowered (GIZ was uncomfortable w high numbers). USAID secretary would be responsible for 75-80% of the target, e.g. of 3,000,000 because we know from SWFF how we collect data.

Step 2: Some KPI targets, USAID wrote them into the RIH contracts, KPI2 are hard targets. LOP of SCA 1,000,000 and MENA 750,000 is a hard target, related to contractual responsibilities. Other targets are technical targets.

Step 3 ('third level'): mutually agreed targets between McK and L. McMahan, re. KPI and Gin.

Some had not set their targets yet as data not available from innovations. Innovations are over-ambitions ('at the edge of realism').

KPI2 & 3: KPI2: 2.5m lower than the RIH total, because GIZ political accommodation. KPI3 idem.

KPI4 the opposite: RIH target is much lower, they thought there would be more done in energy , food processing than we now see. They'll probably revise these.

KPI5: not every RIH made it

KPI6: RIH combined will exceed that significantly (given experience w SWFF).

KPI7: target is balanced; aggregation of RIH targets. 34m for WE4F, but RIH is lower but based on previous program we think we'll meet the overall target.

KPI9: add up RIH targets, are higher and they already exceeded these targets.

Gin4 and Gin45: aren't there yet, not enough data.

Gin6: RIH target for SSEA is higher than MENA, SCA. Those are going to be revised in January.

RIH target are ambitious but realistic. Program targets rise, as GIZ set too-low targets (GIZ has more money than we have, we 34m\$, they 34-35m\$).

ANNEX 10: THE EVALUATION TEAM

David Hemson, Team Leader

Dr. Hemson is a senior researcher and evaluator with 24 years of experience in water services and resource management, water policy, climate change, clean energy policy, social policy, and gender analysis. His research includes public private partnerships, performance and impact evaluation, gender analysis, rural development, infrastructure, labor market analysis, and disaster risk reduction. Dr. Hemson's extensive evaluation experience includes serving as the Team Lead for the SWFF Evaluation, for which he designed surveys and qualitative research instruments, supervised data collection in seven countries, and led the production of evaluation reports. He was the Director of the Social Policy Program at the University of Durban-Westville and the Research Director with the Human Sciences Research Council, a statutory research institution in South Africa. He wrote numerous research reports, published peer-reviewed articles and book chapters, reviewed manuscripts on water, sanitation, and hygiene issues for publication and edited a book on poverty and water. He has a Ph.D. in Sociology from the University of Warwick, and a BA in African Studies from the University of Natal. His country experience includes Ethiopia, Bangladesh, India, South Africa, and Indonesia.

As the Lead Consultant, Dr. Hemson will be the primary interlocutor with the Contracting Officer's Representative (COR) and the Founding Partners. He will develop the workplan, evaluation design and data collection templates, and be responsible for the quality and timely execution of evaluation reports. He will ensure all deliverables adhere to Organization for Economic Co-operation and Development's Development Assistance Committee Quality Standards for Development Evaluation, European Union's General Data Protection Regulations, and the USAID Evaluation Policy.

Elise Pinnars, Senior Consultant

Ms. Pinnars has over 15 years of evaluation experience in agriculture, farming systems, agroforestry, land tenure, and gender. She has conducted evaluations for numerous clients and brings extensive German public sector experience. Ms. Pinnars is currently leading an evaluation Low Emission Development Strategies in eight countries across Africa for the United Nations Environment Program. Ms. Pinnars holds an MSc in Tropical Agriculture. She is fluent in English, French, Dutch, and Kiswahili and highly proficient in German.

As one of the two WE4F Evaluation Senior Consultants, she will work closely with the lead consultant in the development of the evaluation design and data collection instruments. She will also work closely with Ms. Sarah Mangones during the data collection to provide quality checks on the incoming data from the Local Evaluators, to train the evaluators in each region, and to contribute to the data analysis.

Sarah Mangones, Senior Consultant

Ms. Mangones brings twelve years of experience with water/environmental management, monitoring and evaluation, data collection, and report analysis and writing. In addition, Ms. Mangones brings experience within the agricultural sector, water, and sanitation sector, as well as the housing and urban development sector. She designed and wrote proposals (regarding solar systems, gravity fed spring systems etc.) for current and future water projects. Additionally, she collected geophysics data, information on water sources supply/water quality, well tests for feasibility studies, and developed a sanitation program to be implemented in rural communities throughout Haiti. Ms. Mangones has considerable

experience with the process of assuring compliance with USAID environmental standards. She holds a MA in Environmental Engineering from Michigan Technological University, a Graduate Certificate in Monitoring and Evaluation from American University and received her BA in Chemical Engineering from the Illinois Institute of Technology.

As one of the two WE4F Evaluation Senior Consultants, she works closely with the lead consultant in the development of the evaluation design and data collection instruments. She also works closely with Ms. Elisabeth Pinnars during the data collection to provide quality checks on the incoming data from the Local Evaluators, to train the evaluators in each region, and to contribute to the data analysis.

Virendar Khatana, SSEA Region Local Evaluator

Dr. Khatana brings regional Southeast Asia experience and over 25 years' experience in designing and managing development sector projects in the field of resilient agriculture, rural livelihoods, education, poverty and vulnerability, and climate change related issues, including in remote rural and conflict affected areas. Dr. Khatana holds an MSc in Management as well as an MA in Geography (specialization in Agricultural & Rural studies), and a PhD from Meerut University. He is well versed in data collection methods, how to conduct key informant interviews, focus group discussions, and has done data collection for projects in several Asian, African, European, and American countries.

As one of the Local Evaluators, Dr. Khatana is responsible for data collection taking place in the Southeast Asia Region. In this role he is responsible for submitting data collection updates, data, and feedback on the surveys to his point of contact throughout the evaluation. Additionally, he carries out site visits and builds relationships with the regional hubs, Innovations, and end users.

Samir ElGwely, MENA Region Local Evaluator

Dr. ElGwely brings MENA regional experience and over 17 years' experience in designing and managing development sector projects in the field of rural development, water management and sustainability, agricultural management and climate change adaptation, poverty, and gender related issues. Dr. ElGwely holds a PhD and MSc in Agricultural Extension, as well as a BSc in Agricultural Sciences. He has a strong background in the design and implementation of evaluation studies, capacity building, needs assessment studies, and Farmer Field Schools. His strengths in data collection and monitoring are centered around his experience primarily working in the MENA region (Egypt Jordan, Lebanon, Iraq).

As one of the Local Evaluators, Dr. ElGwely is responsible for data collection taking place in the Middle East North Africa Region. In this role he is responsible for submitting data collection updates, data, and feedback on the surveys to his point of contact throughout the evaluation. Additionally, he carries out site visits and builds relationships with the regional hubs, Innovations, and end users.

Adelaide Bryan, Project Management Unit, Evaluation Specialist

Ms. Bryan has over 8 years of experience with Monitoring, Evaluation, and Learning projects operating in conflict, transitional, or post conflict environments throughout the Middle East and North Africa region. Ms. Bryan holds an MA in Arab Studies from Georgetown University's School of Foreign Service. She also holds a BA in Anthropology and Near Eastern Languages and Cultures, with a Minor in Linguistics from Indiana University. She has worked in Egypt India, Iraq, and Turkey, as well as worked remotely based in Washington DC on projects in Jordan, South Sudan, and Syria.

Ms. Bryan provides in-house subject matter expertise and review technical deliverables. She participates in project management and supports the Project Management Unit (PMU). Ms. Bryan also establishes a continuous feedback loop between the WE4F Evaluation Team and Client to assess performance standards and overall satisfaction. Lastly, she supports with the creation of infographics, internal and public-facing webinars, as well as public presentations of key results and recommendations.

Laurah Hester, Project Management Unit, Project Associate

Ms. Hester has over 3 years of professional experience supporting global development and security programs with a specialization in quantitative/qualitative research and analysis. Ms. Hester holds an MA in International Affairs from The Hertie School, as well as a BA in International Relations: Politics & History from Jacobs University. Her country experience includes Angola, Brazil, China, France, and Germany.

Ms. Hester provides administrative support including procurement, international travel, and logistics support. She supports mobilization and management of the consultant team. As the Project Associate, she reviews monthly field expenditures and processes expense reports. She also maintains consistent communication with all personnel to respond to needs and support accurate timekeeping. Ms. Hester organizes project records and files and reviews and edits routine progress reports for quality control. She supports project procurements in accordance with client and Dexis policies as well as provides surge support for the recruitment of consultants.

ANNEX 11: LIMITATIONS, RISKS, AND EVALUATION MITIGATION STRATEGIES

Table 63: Risks and the evaluation mitigation strategies

Risks	Mitigation Measures Taken
COVID-19 Pandemic and Environmental Risks	
Difficulties in getting face-to-face time with innovations to capture their views and observe the conditions of innovations on the ground (due to Covid)	All protocols and instructions include that COVID-19 rules should be followed, venues chosen wisely, distances kept, masks worn, and whatever rules that apply be followed. When absolutely necessary, face to face interviews will be replaced by online interviews; in that case, site visits will also be managed virtually. RIH will propose a list of key resource persons and propose which ones will be interviewed how (face to face where possible, or online, or by phone). Attention will also be paid to avoid scheduling data collection activities over major religious and public holidays.
Covid-related delays may affect the evaluation, just as it also slowed the launch of RIHs and prevented program activities from being implemented	COVID-19 related disruption particularly on RIHs have made intense demands on staff and constrained availability of staff for KII. Risks related to COVID-19 have been discussed above, in kick-off interviews with RIH, who can give their assessment on COVID-19 situations in the different countries, and possible effects on the evaluation.
Environment-related delays, particularly synchronizing field surveys after the harvest season. Timing needs to be coordinated with planting/harvest as well as Evaluation Team availability. Travel may also be affected by dry/rainy seasons and determine anticipated timelines.	Risks related to environmental factors will be discussed early on in the planning and scheduling of RIH data collection efforts. To the extent possible, the Evaluation Team will sequence data collection site selection in correspondence to the agricultural seasons and analyze the administrative data during the agricultural off seasons.
Undertaking a Data Quality Assessment (DQA) of the Administrative Data, closing gaps in availability and developing a dataset with high levels of verifications	The Evaluation Team to the extent possible will sequence the data collection and review of the administrative data in relation to when the RIH are launched and implementing.
Data Collection and Analysis Risks	
Insufficient access to customers and non-customers to understand surveys of sufficient numbers of end users to ensure confidence in the success factors for the innovations.	Efforts will be made to plan as far in advance as possible with the innovations to impress upon them the need to meet with as many customers and non-customers as feasible within the allotted time. In addition, access is needed to Customer Response Strategies which the Innovations have undertaken.

Risks	Mitigation Measures Taken
Insufficient budget and time to undertake a representative sample	On sampling, at this stage, the team does not have a full list of estimated end users per innovation, and their locations. Site selection and cluster sampling <i>at the site</i> is critically important in sampling. Questions to help establish 'representativeness' will be raised in the survey and in KII's. For efficiency, support from the innovation will be requested in terms of orientation and travel to the site and advice is also requested on translation as needed. If possible, local maps will be accessed in advance of the consultant proceeding to the field to undertake surveys.
The high number of Evaluation Questions and the availability and willingness of interviewees to respond with detailed or complete answers.	Establishing questionnaires for KIIs and surveys, to elicit meaningful and accurate responses, is difficult; and responding requires lengthy time commitments from interviewees. The team is working on minimizing the interview length while maximizing the data gathered through the questions. Questionnaires will be tested. The team will also use the Administrative Data to supplement field data.
Possible uneven quality of data gathered by external surveyors lessens confidence in indicators of results.	Confidence in the data is being ensured by careful construction of questionnaires on a selection of indicators and preparation of local consultants. The interviews include some questions which overlap to some or other extent with each other, allowing for triangulation. This is also done for similar questions asked to both end users and innovations, or both innovations and RIH. As part of the Dexis quality assurance, every deliverable will pass from LC Hemson to the PMU of WE4F, for a final quality check before submission to the client.
Timeline for the recruitment of the local/regional consultants for the data collection	The PMU will work closely with the Evaluation Team to recruit in accordance with the sequence of data collection sites to mitigate potential delays to data collection.
Data assembled by M&E and Dexis may not reflect responses to the same questions or use precisely the same terms and definitions	The Evaluation design provides details on the common instrument for use by the HIB and Dexis in surveys of end users. This will relate to the alignment of questions and data. During the data assembly process there has been an intensive DQA which included the alignment of questions and data in columns and rows. In the first stage of analysis any irregularities will be noted and resolved. In the KII, qualitative data will be coded and entered into Nvivo, which will be adapted to each region/country to take into account any different terms and definitions, which will be specified in a manual for the purpose.

Risks	Mitigation Measures Taken
Samples of innovations may not be sufficiently representative of the portfolio. The sample of end users may also not be sufficiently representative of all types and layers.	Budgetary and other considerations lead to relatively small samples being achieved among End user groups. We need to confirm with the RIH that the information being collected during visits is sufficiently diverse to cover as many different kinds of interventions across as many geographies within the portfolio as possible within the time and funding constraints. Given the diversity of projects and the purposeful element in sampling, findings from the sample may not infer findings in the universe of the WE4F program. The methods of hierarchical modeling could assist in dealing with the challenge of nested data (i.e., the close association among respondents in the same cluster). The sampling strategy for all research should be synchronized between M&E and Dexis and, if possible, a panel established.
Disaggregation of household income to that of women and men's income is difficult to achieve	Since most women farmers participate in agricultural activities as part of a household together with their husbands it is difficult to measure their income separately (IM4.1). To mitigate this, the household income indicator will have an additional proxy indicator where women self-report: in a survey question on the estimated female/male share of the additional income and other benefits, and in qualitative interviews on their contribution and compensation in material terms.
Each innovation is relatively unique and there is a challenge in ensuring comparability of data across this diverse group of innovations	The WE4F Evaluation Team will need to be mindful of this challenge at all stages of the analysis and to assess and ensure comparability in undertaking analysis.
The Evaluation Team does not know what data will look like from the Salesforce ICT platform and the timeline for data transfers.	The WE4F Evaluation Team has worked closely with the WE4F Program through the DQA exercise to align Dexis and the Salesforce data and update the work schedule as needed.
Information for certain KPI and Gin for some innovations is not available, due to lack in documentation, delay by external surveys	Through the DQA the evaluation has been confident to undertake the data analysis with the data provided as part of the final set shared by July 29th 2022 for MENA and SSEA.
The full set of SCA RIH information is not currently available	The team will sequence MENA and SSEA RIHs first and will update the schedule and sampling with SCA Innovations once that data is available.
Achieving knowledge and understanding of the relative contributions of various agencies within and without the Program.	The team will work to triangulate from multiple sources in assessing contributions and proportional contributions from many points of support. In addition, process tracing will be planned and undertaken to trace the movement from input to output and finally to impact on end users.

Risks	Mitigation Measures Taken
The comparability across different GCF in terms of costings is proving challenging as they each operate in different ways and offer different support. Finding the right comparators may not be straightforward.	The Evaluation Team recognizes that this may be a challenge and is working to reduce this risk particularly by liaising with Syspons to help clarify approaches to this issue and seeking advice from policy makers who have experience in a number of GCF.
Incomplete compliance with the European Union's GDPR	The Team Leader is working closely with the PMU to ensure that all data be handled according to the EU's General Data Protection Regulations (GDPR 2016/679) ¹⁰⁷ as well as USAID's Evaluation Policy.
Difficulty in assembling responses from control group without having an incentive to report to this WE4F Evaluation Team.	The evaluation has attempted to construct controls but there have been many challenges. In the interview introduction (protocol) will explain that the interview questions are not just to gather data but also useful to reflect on one's own business. Further, a lottery will determine which control group company is invited to one (or several) innovating companies to (volunteer to) host a peer learning gathering on the subject of agri-water-energy innovation. Potential volunteer company (or companies) are approached informally through WE4F's network (alternatively, interviews with WE4F innovations could end with a question to ask whether they would be interested to host a meeting between companies).
Defining smallholders & farm size	In the definition of terms, the Evaluation Team has defined smallholders and farm size. This will be reassessed after the conclusion of end-user surveys.
Impact 3, Illustrative Indicator (II-IM3): on GHG emission: "Total GHG emission/year saved by end users through use of products/services of WE4F innovations." The impact notes 'along the food value chain' and the II-IM3 secondary data source is 'lifecycle assessment'. This may suggest a wider scope: the emission effect along the lifecycle of the innovation.	1. Estimating emissions is a herculean task; the Team will explore the CLEER Tool as a resource as a way of assessing pre/post changes in emissions. The following need to be undertaken: 2. The Evaluation will quantify the <i>fuel</i> effect directly at farm/end user level, comparing pre- and post-innovation fuel use (efficiency, fuel type change); this corresponds to KPI5 (total energy saved). 3. The Evaluation will identify, by comparing pre-and post-innovation, non-fuel emission factors along the lifecycle of the innovation, on-farm (e.g. changing farm practices) and off-farm (through input use, by-products, transport, etc.). But given the complexity, the emission effect cannot be quantified for a lifecycle of innovation-related products, and a comprehensive carbon balance not be produced.

¹⁰⁷ The General Data Protection Regulation (EU) 2016/679 (GDPR) is a regulation in EU law on data protection and privacy in the European Union (EU) and the European Economic Area (EEA). It also addresses the transfer of personal data outside the EU and EEA areas. The GDPR's primary aim is to enhance individuals' control and rights over their personal data and to simplify the regulatory environment for international business.
<https://www.oecd.org/development/evaluation/qualitystandards.pdf>

Risks	Mitigation Measures Taken																
Definitions of indicators for the same term may differ. Defining environmental sustainability: Emission is one element of sustainability and also biodiversity is to be integrated - often singled out - in the Evaluation's approach to assessing environmental sustainability. These indicators refer to environmental sustainability: • IM1/KPI10: climate friendly, energy and other water efficient innovations • IM2/KPI2: energy and/or water efficient innovations • IM3/II-IM3a: GHG emission, and KPI5&6 (water- & fuel use efficiency) • IM3/II-IM3b: 'improved' (*sustainable) farming practice • OC1/II-OC1d/KPI8: monitor environmental gains • OP2/II-OP2d/KPI8: environment knowledge • The EQ offer yet more environment-related questions.	The Evaluation will use elements from the Agroecology framework¹⁰⁸ to assess – beyond merely energy and water – the on-farm environmental effect of changes in farm practice (resulting from the innovation), with a focus on 1. Recycling (water, biomass); 2. Input reduction (water, fuel); 3. Soil health (fertilizer); 4. Animal health (manure); 5. Biodiversity (agro-biodiversity and NRM); 6. Synergy; 7. Economic diversification. See Figure 4: The AgroEcology framework. <table border="1"> <thead> <tr> <th colspan="2">Level 1,2 & 3:</th></tr> <tr> <th>Elements</th><th>Principles</th></tr> </thead> <tbody> <tr> <td> Efficiency</td><td>2. Input reduction</td></tr> <tr> <td> Recycling</td><td>1. Recycling</td></tr> <tr> <td> Regulation</td><td>4. Animal health</td></tr> <tr> <td> Diversity</td><td>5. Biodiversity 7. Economic diversification</td></tr> <tr> <td> Resilience</td><td>7. Economic diversification</td></tr> <tr> <td> Synergies</td><td>3. Soil health 5. Biodiversity 6. Synergy</td></tr> </tbody> </table>	Level 1,2 & 3:		Elements	Principles	 Efficiency	2. Input reduction	 Recycling	1. Recycling	 Regulation	4. Animal health	 Diversity	5. Biodiversity 7. Economic diversification	 Resilience	7. Economic diversification	 Synergies	3. Soil health 5. Biodiversity 6. Synergy
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Elements	Principles																
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 Diversity	5. Biodiversity 7. Economic diversification																
 Resilience	7. Economic diversification																
 Synergies	3. Soil health 5. Biodiversity 6. Synergy																
Area under improved management practice - as impact-level indicator - lacks meaning without context (II-IM3b on): pre-innovation the area may be larger, or unrelated to post-innovation (e.g., when more harvest/year is possible, or the innovation leads to change of crops), some innovations are not area-specific, or require off-farm resources (e.g., biomass from grazing areas), some innovations may help farmers to increase the (irrigated) farm area, and for biogas or processing-related innovations there is no clear link to area. Similar indicators: OC1 and OP2 are similar, and II-OC1b,c,d and II-OP2a,b,c are very similar, and OP2 is rather impact	The DQA involved the evaluation in assembling innovation-relevant data on production, crop areas, area under irrigation, to be used for various indicators related to production, yield, and effect on income. For some innovations this will produce a meaningful figure as 'area under improved management practice'. The evaluation will combine the different-level indicators (while keeping the topics of gender, poverty and environment separate).																
Uncertainty of terms; smallholder farmer. Base of the Pyramid: comparing KPI2 with KPI7 and assuming that use of the innovation improves income in nearly all cases, it appears that less than 6% of end users are smallholder farmers? The other 94% are larger farmers and some processing companies?	In the definition of terms, the Evaluation clarified what is meant by 'smallholder farmer'; is this an end user who is fully engaged in farming and having a field large enough to subsist on farming? Does this exclude the category “larger farmer”? The distinctions within the category smallholder farmer are important as we are often required to distinguish between farmers and marginalized farmers.																

¹⁰⁸ 2020_08_21_Agroecology_ProSoil_print_version.pdf proposed by the HLPE in 2019

Purpose and Summary

This evaluation depends to a large extent on administrative data for many KPIs and GINs. This applies particularly to the number, location, and characteristics of the innovations as well as their performance indicators.

Gathering the evidence to answer the evaluation questions relies on accessing this data, appraising its quality, and then compiling datasets for analysis. This covering note and the tables below serve to identify challenges in using the administrative data available and ways in which these could be resolved.

Broadly speaking we identified challenges in two main areas:

1. Aligning USAID and WE4F indicators
2. Errors identified the data including missing characteristics
2. Accessing the full set of data for all indicators across all innovations.

The use of Monitoring and Evaluation data is central to the datasets needed to be used in this evaluation. The access of such data and its integration into the datasets available to the evaluator and the assessment of data quality is a major issue in the evaluation. It has dominated interactions between evaluator and client.

For practical reasons, the Evaluation Team has accepted that it should independently seek key baseline and subsequent data from the Innovations. Instead, it should a) accept the M&E data from the Program, assess its validity and then use this data and b) it should focus its data collection on surveys at the base of the pyramid and from surveys of Innovations and qualitative interviews with Innovation and Program officials.

Given the centrality of administrative data, the Evaluation Team has had to give close attention to the Data integrity of this data through a rigorous examination in the form of Data Quality Assessment. Data integrity has been the focus, to examine the design of the Programs database and to authenticate the metadata, procedures for data collection, internal verification of this data. We have worked to the establish the Programs' methodology in data collection, procedures, error checking and validation routines and to also conduct an independent authentication of these procedures and the data itself.

The processes and methodology of DQA involved firstly accessing the M&E data and then (broadly) validating and then verifying the data. Validation involved when a record is initially created or updated to establish, check, and assess the consistency and accuracy of the data; verification then followed as a recurring data quality process to establish the truth, accuracy, or reality.

We have given close attention to validation of the M&E data as it was being migrated and the Dexis dataset assembled from this outside data source. Part of this migration process required validation that records fitted the full WE4F evaluation criteria and were copied accurately from the source system. Small errors in data arising from migration could result in continuing mistakes; it was also important to migrate only that data which was unambiguously accurate. Cross checks were needed to verify the information in the Dexis dataset system and ensure it matched that of the source.

These processes were not separated in time. The challenges were those of returning to fully access the data (and to become familiar with the many data sources available from WE4F M&E), to build a Dexis master dataset which conforms exactly to the criteria of the KPIs and GINs (such as including disaggregation and other details), to verify the data when inconsistencies or inaccuracies appeared, and finally to locate and verify the reasons for empty cells.

Verification can involve sampling data from both the source and destination systems to manually verify accuracy, or it can involve automated processes that perform full verification of the imported data, matching all of the records and flagging exceptions.

The team has worked within the overarching USAID's five quality standards—validity, integrity, precision, reliability, and timeliness in assessing the quality of data. These are defined as follows:

VALIDITY – Data should clearly and adequately represent the intended result.

INTEGRITY – Data collected should have safeguards to minimize the risk of transcription error or data manipulation.

PRECISION – Data have a sufficient level of detail to permit management decision making; e.g. the margin of error is less than the anticipated change.

RELIABILITY – Data should reflect stable and consistent data collection processes and analysis methods over time.

TIMELINESS – Data should be available at a useful frequency, should be current, and should be timely enough to influence management decision-making.

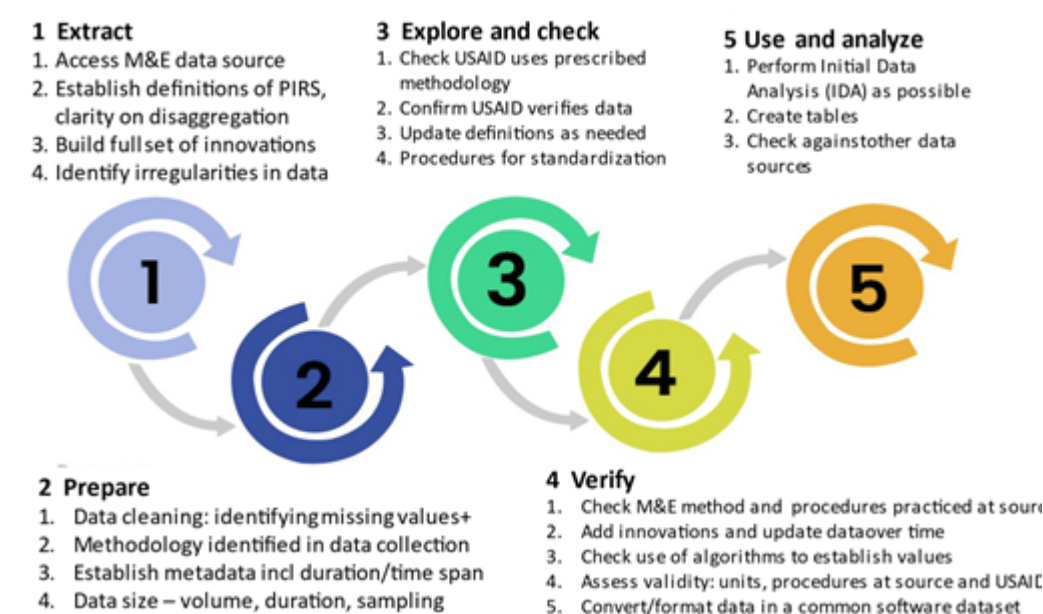
These are demanding criteria. Overall the quality assessment involves scientific ways to determine if data is usable as objective data for the purpose of evaluation. This involves establishing the **metadata** (such as in standardizing units), the serviceability (as in the measure of features that support the ease and speed of which corrective maintenance and preventive maintenance can be conducted on a system), reliability (to ensure data is complete and accurate as the foundation for building data trust) and the structuring of data (to ensure that data is a standardized format).

There are also “common sense” criteria such as logical sequences in data: increased funding cannot be represented by declining numbers. Data cleaning involves the identification of open cells which could represent None (0) i.e. nothing, such as no cattle, a missing value (ND), or a skipped value (N/A). The Team has examined the strengths and limitations of data, the checks by USAID M&E team and the overall usability of the data.

An essential aspect is that the data is standardized to make it usable within the Program as also in the evaluation itself. Data standardization is the critical process of bringing data into a common format that allows for collaborative research, large-scale analytics, and sharing of sophisticated tools and methodologies.

The Evaluation Team is undertaking the following procedures in data quality assessment: extract, prepare, explore, and check, validate and, finally, use and analysis.

Figure 5: From extraction to use: 5 Steps in Data Quality Assessment



Source of DQA criteria: [Conducting Data Quality Assessments](#)

Key procedures in assessing quality of M&E data

The full access and use of M&E data involves processes advancing from validation of accessed data migrated from M&E tables to the verification involving the checking of this data to ensure that it is accurate, consistent, and reflects its intended purpose.

From a study of the procedures of DQA set out in USAID documents, the focus in data quality procedures, will be on the following generic issues:

1. EXTRACT: Definitions of indicators in PIRS and on types of disaggregation
2. PREPARE: Methodology in data collection used by M&E identified
3. EXPLORE AND CHECK: Use of data collection procedures by Innovations identified and use confirmed
4. VERIFY: Use of data quality procedures by USAID confirmed by evaluator
5. USE AND ANALYZE: Data verification by USAID undertaken and confirmed

The identified issues are shared in Table 67 and classifies the issue according to the USAID DQA criteria: Validity, Integrity, Precision, Reliability and Timeliness. Some of the key deficiencies included:

1. Clarification (14)
2. Missing data (8)
3. Contradictory data (4)
4. Incorrect total (2)
5. Unexplained change (2)
6. Missing characteristic (1), ...etc

It is important to note that the final data for the evaluation was provided in late August 2022, but some data was shared beforehand so work initially started in the design phase. This proved difficult as information was being updated and needed to be checked again as new information became available.

Table 64: Types of challenges in data quality (issues and limitation)

	USAID Data Quality Assurance criteria	Identified issues	Resolution
1	VALIDITY – Data should clearly and adequately represent the intended result.	Missing characteristic Unexplained change Clarification needed	A table was shared with specific questions regarding numbers and units missing or not making sense
2	INTEGRITY – Data collected should have safeguards to minimize the risk of transcription error or data manipulation.	Missing characteristic Missing data, Incorrect total	A table was shared with specific questions regarding numbers and units missing or not making sense
3	PRECISION – Data have a sufficient level of detail to permit management decision making; e.g. the margin of error is less than the anticipated change.	Data Clarification and Missing Data Some data not disaggregated by country or gender (Clarification 14?) The PIRS for Gin6 Carbon emissions	When possible, this is done, if it was not done then the data is not there, will have to proceed as is The PIRS was updated for ease of use and now it is tCO2 rather than tCO2 per kg of food)
4	RELIABILITY – Data should reflect stable and consistent data collection processes and analysis methods over time.	Procedure/formula not available or incorrectly applied Unexplained changes (2 instances)? Innovations did not provide proper documents so either reported as No Data or at 80% of results reported (see table 2)	Continuous training has been undertaken by the innovations and has been shared with the ET
5	TIMELINESS – Data should be available at a useful frequency, should be current, and should be timely enough to influence management decision-making.	Contradictory data eg target lower than baseline, some older data still in the table The AWP were updated while the ET was working on the data analysis this information had to be updated to continue the analysis	The baselines were set at “0” and “No” Questions regarding older data and/comments were addressed New AWP information was used

Table 64 shows the criteria for DQA that is used by USAID and aligns the issues that were identified in the data for each criteria and shares the resolution.

The numbers indicate the frequency with which these data quality issues occur.
Some of the data quality issues arise at the Innovation level.
Many of these issues are noted by M&E and corrected.

The detail for these issues is presented below in Table 69. In Table 69 the issues are organized by Region and for issues that affect all the data. These issues were identified during the analysis and resolved with the support from the USAID secretariat on phone calls, emails, and comments on the shared document.

Summary of limitations

Table 78 lists out the limitations found in the M&E data and the 81 AWP. For many of these there no current resolution, as this is the data that is currently available for the Evaluation Team. These limitations remain after the verification process in the data analysis. It is possible that improvements can be made as the project moves forward that allows for easier data analysis for the final evaluation. Some issues that could be addressed or improved upon include:

- Not all AWP include such objectives with associated KPIs
- The RIH have different criteria for reporting.

Table 65: Summary of Data Limitations

No.	Characterization	Issue/Question	Source
1	Validity	Results reported as zero since no documentation is provided and/or the information is not available as it will be collected by an external surveyor, or innovation miscalculated the results	SSEA and MENA Gin28, KPI7
2	Integrity	Some of the target data is missing for indicators	SSEA CFI1 AWP
3	Precision	There are formatting differences for the RIH AWP, some innovations do not have the same format for the numbers (for example KPI1 there are some numbers instead of the EBITDA %)	MENA, SSEA and SCA
4	Precision	The targets and results provided in the AWP and the M&E data are not disaggregated by gender, country, income quintile	AWPs M&E data, KPI5, PKI6, Gin6, etc.
5	Precision	Uncertainty about how many countries an innovation may have or is currently working in	M&E data and AWP
6	Precision	For some innovations' results the number is reduced to 80% the value due to lack of details on end users	KPI2, etc
7	Precision	Baseline is assumed to be zero and "No"	KPI1, Gin13, Gin23, Gin41
8	Precision	Due to limited information the gender was disaggregated based on country demographics of end users not on information from the innovation	SSEA and MENA Gin6, KPI7, others
9	Reliability	The SSEA CFI1 AWP do not contain a budget sheet which would show the contributions from other funders	SSEA CFI1 AWP
10	Reliability	Do not have country, focus area, and innovation type, sector focus and women led for all innovations	M&E data
11	Reliability	Uneven data availability: currently only information for CFI1 SSEA and MENA are available. (As of August 15th, no data has been received for SCA)	M&E data
12	Reliability	There are different reporting requirements for TA only, Legacy and CFI1 and CFI2, also some KPIs and Gins do not apply based on the type of innovation	M&E data, AWP
13	Reliability	Regarding innovation targets, unfortunately there's no single document which compiles innovations' targets. The targets are listed separately in each innovation's AWP/TWP (81 total)	AWP
14	Timeliness	Data being updated: The LOP and yearly targets were updated for SSEA and MENA in August 2022, new data had to be incorporated into the MTR.	AWPs

Classification of Data

As part of the data analysis and to ensure that it is clear that all cells in the M&E are filled in the following codes were used. In undertaking the verification of the data, the ET did not want any empty cells as this could be confusing regarding what information was missing or not reported. Results are reported as follows:

- ND - no data. This is used when there is a target for an indicator and there should be results, but no information was provided or possibly no documentation was provided so the results were recorded as 0 another possible issue was that this information was to be shared by the external surveyor, but this is not yet available.
- NA - non applicable. This is used mostly for innovations that have been terminated from the project and so there is no longer information coming from these innovations, so the results are non-applicable at this point.
- NAWP - Not part of the AWP. This is used when the indicator is not part of the AWP, so there is no target for this indicator for the innovation and the innovation is not tracking this information.

- OT - One Target. This is used when there is only one target provided for multiple countries that are part of the innovations project but there are not targets or results disaggregated by country
- NT - No Target. This is used when there is no target provided for that Year or LOP in AWP. But there were other targets for other milestones.
- NYM - Not yet measured. This is used when results are not measured as these projects or innovations started late, this is usually the case for CFI2, CFI Iraq and SCA.

Classification of data issues

Table shows the issues that have been identified when reviewing the M&E data and the AWP from the innovations. This data was first reviewed by the USAID secretariat and then shared with the ET. During the review it was noted that the format and details from the hubs were different. There seemed to be more incorrect addition and typos in the data coming from the SSEA hub.

Table 66: Schedule of detail in registering and resolving data issues

No.	Type of Issue	Issue/Question	Resolution
SSE Asia			
1	Incorrect total	In KPI2 for Pumpkin Plus the total did not add up	Total is 3108
2	Incorrect total	Gin6 Claro Energy the inputs for male and female did not add up	Small holder farmer is 17000
3	Contradictory Data	Gin28 aQysta had contradictory information from old comments in the M&E file	Numbers remain as is
4	Missing characteristics	KPI9 Oorja the type of investment was not included in the file	Missing data
5	Missing data	Gin1 Zoo Fresh, Sumba Solutions, Promethean Units for Foods not provided	Units added ZOO Fresh # of fish orders Sumba 13 active mills Promethean –milk chillers
6	Data Clarification	Do not have Gin2 numbers for SSEA innovations	Not part of AWP, but will double check
7	Data Clarification	How should part time jobs be counted for Gin10	Overall total -
8	Data Clarification	KPI6 a unit of kL but appears in litres was used for KPI6 for Onergy	
9	Contradictory Data	Updated targets comment states that the LOP and Year did not change but the numbers do not match the original AWP (for KPI2)	Go with the new updated numbers as what to report on
10	Data clarification	Claro RDO (TA only) Missing KPI1 data for TA	KPI1 and others, there is not hard and fast rule for TA only indicators, case by case basis
MENA			
1	Missing Data	What are the units for IRSC Egypt for Gin1	# Of solar pumping systems
2	Missing Data	What are the end users for Alva Tech KPI6 Disaggregated results for end user type not provided by innovation for KPI6	No data provided, reported as ND
3	Missing Data Data clarification	KPI8 is not included in the file	Not included because documented on the secretariat level, all grantees automatically receive a result of yes, since they have been required to have an EMMP created, TA only always receives a No Result
4	Data clarification	What does SA1 and SA2 refer to for Gin20, the total	GIN20 is a semiannual indicator, the results shown are the annual total. In the comments it shows the results for partnerships and reported in the first and semi-annual period (SA1) and second semiannual period (SA2)

No.	Type of Issue	Issue/Question	Resolution
5	Contradictory Data	Legacy or CF2, On the list there are innovations that are listed as CF2 but have legacy targets (agrosolar, recyglo)	Are part of the CFI2 cohort
6	Missing Data	There are no LOP targets for KPI1 for Platform and	Missing data
7	Clarification needed	LOP and all numbers changing in TWP but little explanation for some innovations	Use the information in the updated AWP
8	Unexplained Change	Year 1 target for Gin20 was changed for Compost Baladi	Use new numbers
9	Unexplained Change	KPI1 for SuWaCo did not update the format	Use the information in the updated AWP
SSC			
1	Missing Data	Are there other innovations that we have not received information for (only have some information for Meat Naturally and Reel Gardening)	No other SCA innovation data collected at this time
Other / Overall			
1	Missing data	The innovation list of July 2022 is missing names of innovations that are no longer with the program	List updated
2	Data Clarification	Baseline for the data with Yes or No answers, is this “ No”	Baseline is No
3	Data Clarification	Number of farmer or END user (before multiplied by HH) is given in the comments for most of the innovations for SSE but not for MENA	This was due to old comments left by Tetra Tech, find the individual count by dividing result by HH
4	Missing Data	Not all the innovations have the updated AWP for example Tun Yat	Use information in the updated AWP
5	Data Clarification	KPI1 Sales with profit – There are different ways in which data are entered, some mention the EBITDA margin, others not.	Information updated when possible use EBITDA data, it can be positive or negative
7	Data Clarification	KPI5 Energy saved – This energy does not relate to whether it is saved for either water or energy or both (innovation type: see comment below*). The period is not specified, it would help that the data confirm the unit (kWh/y).	This is for year 1 of the project
8	Data Clarification Contradictory Data	KPI6 Water saved – This water does not relate to whether it is saved for either water or energy or both (innovation type: see comment below*). The period is not specified. A review of SSEA and MENA data finds some challenges in interpretation. For example, in MENA and SSEA LOP targets are higher than the Y1 targets, which is right (expected for water-related innovations); however, in SCA there are baseline values that are higher than LOP targets.	This is for year 1 of the project and is now just liters of water, baselines are set to zero
9	Data Clarification	KPI7 No. of end users’ income increase – For evaluation purposes we need to know in how far this applies to the more vulnerable categories of users (incl. poorer, women).	
10	Data Clarification	Gin6 GHG emission saved/kg food – We note gender disaggregation, would like to explore this a little bit further. A critical factor is identifying the BAU and the improved practice, leading to reduced emission. Will this be a question in the external surveyors’ questionnaire?	This is not just GHG saved, and innovations use CLEER tool to calculate this

Data issues with KII

Had data questions, but USAID did not want this included, so then the ET became fully dependent on the M&E data

Data issues with Innovation Survey Data

The survey link was shared with all the innovations and a total of 31 innovations responded, of which the 12 innovations from CF1 were analyzed.

Recommendations

The following recommendations are made to help address the issues identified during the analysis of the M&E data:

- The same format by RIH can be used for reporting for each of the innovations so that it is easier to quality check
- Continued trainings to keep procedures and methodologies are kept up to date and current for the innovations.
- Improve upon the coordination that was taken to review, clean up the data and organize it together into one from the SSEA and MENA year 1 results, annual results and the 81 AWPS. We note that the CFI1 SCA data will soon be available

ANNEX 13: ENVIRONMENTAL ANALYSIS

USAID has environmental requirements (source: <https://www.usaid.gov/environmental-procedures/environmental-compliance-esdm-program-cycle/22-cfr-216-usaid-eia-process>) but these are last updated in 2013 and quite lengthy.

The instrument used in the WE4F program is the EIA tool and was last revised in 2017¹⁰⁹. This is done with two main instruments¹¹⁰:

1. The IEEs identify potential environmental effects (source: <https://www.usaid.gov/documents/1860/usaid-environmental-impact-assessment-tool-word>)
2. The EMMP translates IEE into specific mitigation measures (source: <https://www.usaid.gov/environmental-procedures/environmental-compliance-esdm-program-cycle/mitigation-monitoring-reporting>)

Irrespective of the presence and quality of more accessible materials for innovations to assess their possible impact on the environment, we can also use common sense, with roots in the lifecycle approach (some documentation on this approach is offered at the end of this annex). And this while keeping in mind the relevant evaluation questions:

- EQ1c: contribute towards or contradict SDG
- EQ1e: unintended effects on ‘local water efficiency and water resources’
- EQ1f: unintended effects on ‘local agricultural energy efficiency, access, and energy resources’
- EQ1l: effects on marginalized groups (intended, unintended)
- EQ1m: effects on water resources or biodiversity
- EQ1n: trade-offs between impact on marginalized groups and environmental sustainability, biodiversity.

The last question EQ1n provides an excellent concentration of the questions: the trade-offs between different water- or energy-related effects, natural resources (water) and biodiversity, and socioeconomic effects.

Table 67 presents, for the sample of CFI1 innovations interviewed, a summary and analysis of illustrative IEE: Initial Environmental Evaluation (IEEs) and Environmental Mitigation and Monitoring Plans (EMMPs).

¹⁰⁹ Source: WE3F Evaluation shared folder / Data files / Enabling Environment Work / Environmental impact training materials / Monitoring EIA_Tool_Revised_4Dec2017_FINAL.DOCX

¹¹⁰ WE4F processed the requirements into a training provided to innovators (source: L. McMahan, meeting dd 6 Oct. 2022). That is presumably about the USAID environmental impact assessment tool.

Table 67: Summary and review of illustrative IEEs and EMMPs

Region	Innovation*	Country	IEE	EMMP	comments / questions for next interview
SSEA (n=7)	aQysta Nepal Water-powered pumps for crop irrigation	Nepal, India	Negative determination, all risks low. Potential impact (Table 3A): a. Withdrawal surface water, water quality b. Riparian vegetation, erosion, hydrological function disruption c. Aquatic spp. d. Construction materials, -erosion e. Increase in irrigable land use, agrochemical use Table 5A mitigation measures: a. Pumps not running rivers dry (inherent) b. Minimize water diversion, on banks no construction, erosion control c. Educate farmers on water/pump management, waste minimalization (recovery, reuse) d. Train farmers on water management and farming practices	For marginal farmers, innovative EASI-Pay model (Enhancing Access to Sustainable Irrigation with pay-after harvest model): pumps in combination with ag. extension service, critical agri-inputs, and market access for harvest. Farmers pay through a proportion of the harvest.	IEE: is a rather comprehensive assessment of 'low-level' risks. The summary does not recall the farming practices education, it is limited to the innovation itself. EMMP does not explain what critical agri-inputs / agrochemicals. Does the innovation also introduce innovative farming i.e. reducing agro-chemicals by introducing a different approach for crop health?
	ATEC (portable) biodigester production	Cambodia, Bangladesh	Negative determination, all risks low. Potential impact (Table 3A): a. Land, water, air pollution, solid waste, b. Energy use Table 5A mitigation measures: a. Reuse, recycling, product shipping boxes b. Use low-emission power (gas), want to move to solar/wind when feasible The IEE mentions manure as a first feedstock input, and identifies that 4 million rural households in Bangladesh own livestock (≥ 3 cattle).	End user level effects considered no risk	Pretty comprehensive assessment, however, the feedstock source (apparently mostly manure) has an important environmental footprint and this is not discussed: livestock takes up considerable land to be fed, and this competes with food production. Many more millions of rural households do not qualify (and do not have the means to own enough livestock to run a biodigester) but have to compete for land.
	Goat Trust Goat breeding services	India	Negative determination, all risks low. Potential impact (Table 3A): need to collect fodder from forest, and produce fodder on 'wasteland'	'Strategic grazing' in the forest, to prevent forest fires	Strategic grazing not explained, and education on forest management not clear. Also not discussed whose forest this is?

Region	Innovation*	Country	IEE	EMMP	comments / questions for next interview
	Onergy Solar pumps for irrigation (Tetra Tech consortium)	India	Negative determination, moderate and high climate risks. Potential impact (Table 3A): improper use can lead to clearing more land (deforestation), and over-drawing of water Electronic waste.	'Connected action (not funded by WE4F). Recommended mitigation measures will be incorporated, as appropriate. Waste management plan. Promote water efficient farming, drip irrigation	IEE: is a rather comprehensive.
	Oorja Off-grid solar projects	India	Negative determination, all risks low. Potential impact (Table 3A): recycling, disposal of waste all by Oorja (they operate the projects	Plan: ethical sourcing of products	Interesting, to see that ethical sourcing of solar panels is noted. Also noted: solar panels waste disposal.
	Pumpkin Plus Sandbar cropping (in riverine areas, 'barren transitional lands')	Bangladesh	Negative determination, low and moderate risks. Potential impact (Table 3A): a. Chemical inputs □ water quality b. Land clearing c. Erosion d. PV end of use e. Water use altering river flow f. Vegetation removal	Training on pesticides (prior: develop a PERSUAP = ?) Erosion measures present (ok)	Pretty comprehensive assessment, and plan. Pumpkin farming – in this document - seems to need pesticides; the plan does not suggest an alternative approach to crop health, yet farms in riverine areas.
	Sumba Solutions Bamboo workshop w solar panels	Indonesia	Negative determination, all risks low. Potential impact (Table 3A): a. Construction bamboo workshop: land clearing, loss of biodiversity, habitat b. Operation toxic substances: potentially contaminate water c. Solar panel end-of-life and batteries: toxic substances Table 5A mitigation measures: a. For construction 9 measures b. For operation: circular system, monitoring groundwater, fire risk c. Solar panels: upcycle lithium ion batteries, collect e-waste, recycle	Additional risks: extraction of NTFP adverse effects, travel effects, etc.' (NB: for this, no mitigation is mentioned)	Pretty comprehensive assessment. Bamboo is not related to food production. Negative determination, in spite of: ② not indicating the source of bamboo (in a forest with indigenous people) ② the size of the area to be cleared (for construction) and biodiversity ② etc. (many comments in the margin yet to be dealt with)

Region	Innovation*	Country	IEE	EMMP	comments / questions for next interview
	Tetra Tech Briquettes Source: Char briquettes EMMP 2022 revised (1).docx	Cambodia	n.d.	Environmental issues to monitor: 1. sourcing of raw material competing with other uses 2. facility construction land rights, - use issues 3. power for production Monitoring: # of incidents of negative impacts on environment No mitigation plan.	Issues 1 & 2 are discussed as only socioeconomic issues. Issue 3: no mitigation suggested. No environmental issues planned to be addressed (making the environmental indicators obsolete). Unfortunately, the source of raw materials for the briquettes is not identified.
MENA (n=8)	Biomass white label organic products	Lebanon	All negative determination, 2 moderate risks.	Sub activities: 1. Greenhouses (plastic); 2. Farming equipment incl. drip irrigation stuff; 3. Solar power. Recycling of equipment, batteries - not greenhouse plastic.	Many comments from RIH on the IEE show that the document leaves unanswered questions.
	Chitosan organic pesticides & fungicides fr shrimp shell	Egypt	All negative determination, some low, some moderate, some high risks. Water use excess, water contamination, solid waste, medical waste, but currently no hazardous waste (no waste tracking). Strong acids or bases for extraction.	No EMMP available.	EMMP?
	Compost Baladi Compost, - equipment, organic, urban waste collection	Lebanon	Negative determination, all risks low. Excavation, decentralized treatment, leachate drainage system. Mostly in urban plots.	Long list of mitigation measures for moderate risks.	
	IRSC	Egypt			
	Platform	Egypt			
	Schaduf mini-greenhouse (box) hydroponic farming systems (rooftop, urban)	Egypt, Sudan, Syria	Negative & deferred per 22 CFR 216.3(a)(7)(iv), low and moderate risks Table 3A: waste (plastic)	No EMMP available	EMMP?
	SOWIT software for plot-specific irrigation recommendations	Morocco, Tunisia	Negative determination, all risks low.	'ground truthing' regular farm visits, for local proof of value experiments	ok

Region	Innovation*	Country	IEE	EMMP	comments / questions for next interview
	SUWACO Wastewater treatment / re-use in rural ag. communities	Egypt	Negative determination, all risks low. Equipment, energy use, solid waste	No EMMP available	EMMP? Why not a less energy-using method, artificial wetlands? What is done w the solid waste?

*: the innovation sin the grey areas are not part of the sample

Source: WE3F Evaluation shared folder / Data files / Environmental Monitoring / CF11 / [region] / IEEs [or EMMPs]

What was good in this documentation is that it shows rather strong efforts made towards the identification of environmental effects directly related to the actions of the innovation. Multiple, apparently relevant potential effects are identified. And for most (not all), the EMMPs suggest some ways of mitigating.

What is also seen (taking into account many RIH comments asking for more details, more clarify) is that some potential effects are not clearly described in the IEE, or if they are, not re-appearing in the EMMPs, or not in the same way, or not in a clear way.

It appears a lot more time should be spent on these instruments, to make them complete and clear to outsiders. And that raises questions of efficiency: how much time could or should be spent on this, to what effect?

The choice of the instruments can also be questioned: the limitations of EIA are that they focus on the more direct effects of the action, and that can be a narrow framework, leaving out (responsibilities for) effects along the lifecycle of the innovation and-in-connection the farming: from sourcing of materials (effects of mining, forced labor, deforestation) to consumer health and end-of use disposal (and all along there are marginalized groups – not only considering end users; the WE4F ToC mentions ‘along the food value chain’ which could imply many different stakeholder groups).

Among several innovations that include solar panels, there is one that refers to ethical sourcing of solar panels (a USAID requirement).

Below some references to lifecycle assessments:

ATTRA, 2013. Life-Cycle Assessment in Agricultural Systems

https://www.e-education.psu.edu/geog3/sites/www.e-education.psu.edu/geog3/files/Mod10/life_cycle_assessment.pdf

<https://images.app.goo.gl/DfiSGkef1Di2ULTt9>

<https://images.app.goo.gl/qMVyvY6PvmgQVsnz9>

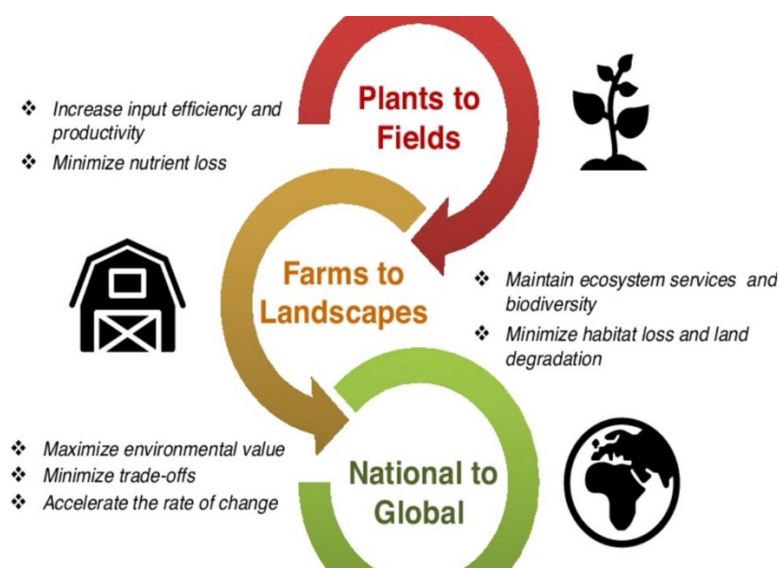


Figure 6: Sustainable intensification in land systems: trade-offs, scales, and contexts (source: Thomson et.al., *Current Opinion in Environmental Sustainability*, Vol. 38, June 2019 (p. 37-43)

<https://images.app.goo.gl/BaXmPi5A9nMBuvqc6>

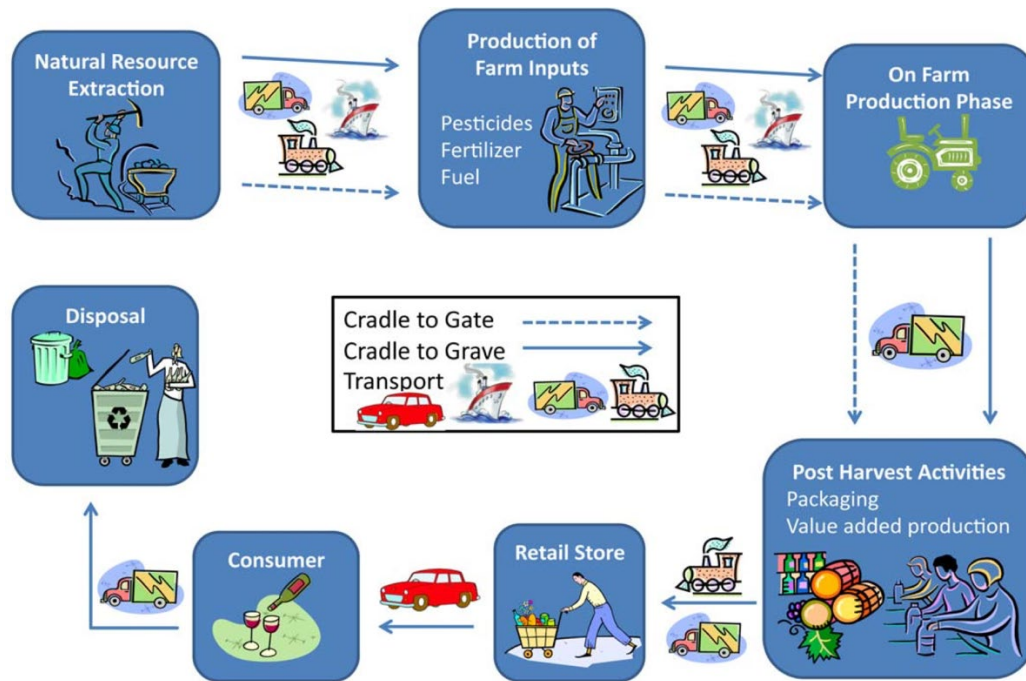


Figure 7: Life-cycle assessment phases, cradle-to-gate and cradle-to-grave (NB: this model ignores the input of land/biodiversity and water)

Source: https://www.e-education.psu.edu/geog3/sites/www.e-education.psu.edu/geog3/files/Mod10/life_cycle_assessment.pdf

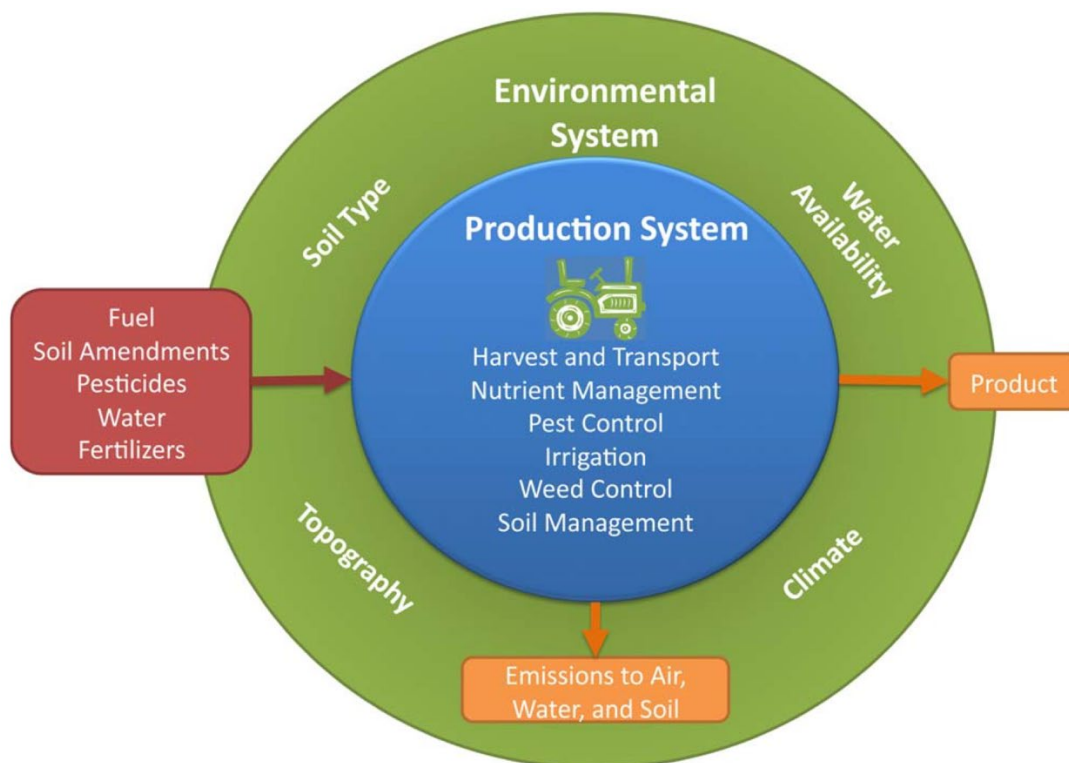


Figure 8: On-farm lifecycle components and flow between the environment and the production system (NB: this model ignores the input of land/biodiversity)

Source: https://www.e-education.psu.edu/geog3/sites/www.e-education.psu.edu/geog3/files/Mod10/life_cycle_assessment.pdf

ANNEX 14: THE SCOPE OF THE MTR

Table 68: Defining coverage and limits: Evaluation Questions, KPIs and General Indicators

Report section	Code: EQ, KPI or GIN	Code*	Explanation
3.1.1 Relevance	EQc Interventions relevance to water, energy, food	Full	Data available from self-reported focus of innovations.
3.1.2 Relevance	EQ1a Demand, local ownership for innovations	Full	Available data is reviewed. Expressed also in end users
3.1.4 Relevance	EQ1b support addressing key WE4F needs	Full	Undertaken.
3.2 Cohesion	EQ1c Interventions contribute to SDG (or not)	Full	Innovation self-description matched to objectives.
3.3.1 Effectiveness	EQ1d help to overcome organizational capacity	Full	Scores of TA events are assessed.
3.3.1 Effectiveness	EQa innovations found TA useful	Data limit	Available admin data and KIIs analyzed.
3.3.1 Effectiveness	EQn help that improved end user targeting (marg. groups)	Data limit	More data to collect on TA content/quality
3.3.2 Effectiveness	EQp strengthening innovations' impact on cross-cutting issues helped to access ext. finance	Limit stage	Early data analyzed; PPPs not yet fully examined.
3.3.2 Effectiveness	KPI9 Ext. Funding mobilized by innovations	Full	Extensive data available.
3.3.2 Effectiveness	Gin33 co-funding for innovations	Full	Extensive data available.
3.3.2 Effectiveness	Gin40 # of contacts of potential investors	Limit stage	Early stage in reporting.
3.3.2 Effectiveness	Gin41 innovations' share using fin. guarantee instrument	Limit data	Further surveys needed.
3.3.2 Effectiveness	Gin20 # of ext. partnerships formed by innovations	Limit data	Further surveys needed.
3.3.2 Effectiveness	EQ1h to what extent PPP meet energy, water targets	Limit data	PPP understood but limited data available.
3.3.2 Effectiveness	EQf to what extent IF led to additional funding	Limit stage	Limited early data analyzed.
3.3.3 Effectiveness	EQd enabling env. work compatible w marg. groups	Limit data	RIH KIIs undertaken, more data collection needed.
3.3.3 Effectiveness	EQm extent to which innovations find enabling env. support useful	Limit stage Limit data	Innovation survey explored some of this.
3.3.3 Effectiveness	EQb interventions (TA, IF, enabling env.) differ in meeting innovation needs	Limit stage Limit data	Analyzed data available, no finding made on comparative value of different interventions.
3.3.3 Effectiveness	Gin28 # end users using -financing	Limit data	End user surveys, limited responses
3.3.3 Effectiveness	EQl end user finance improved uptake	Limit stage Limit data	Further data collection in surveys needed.
3.3.3 Effectiveness	KPI10 # strategies, guidelines adopted	Limit stage	Early stage and limited reporting as yet.
3.3.3 Effectiveness	Gin4 innovations' gross sales	Limit data	Available data analyzed, many data gaps identified.
3.4 Efficiency	EQg founding partners' interaction, lessons	Limit stage	Explored in KIIs and will be further explored.
3.4 Efficiency	EQk admin cost compared to similar funds	Limit data	Data being assembled; more KIIs with donors and innovations needed.
3.4 Efficiency	EQj RIH set up, management efficiency	Limit data	Available data analyzed and findings made.
3.4 Efficiency	EQ1j innovations used resources efficiently for max. impact on marg. groups, environment	Limit data	More time needed, depends on completing data on support provided, and impact

Report section	Code: EQ, KPI or GIN	Code*	Explanation
3.4 Efficiency	EQe TA immediate, and long term success	Limit stage	On-going reporting and interviewing needed.
3.4 Efficiency	EQh WE4F results balance with efforts and resources	Limit stage	Early stage more data collection and analysis needed.
3.4 Efficiency	EQi WE4F added value balance with efforts resources	Limit stage	Good early data available; continuous data collection needed.
3.4 Efficiency	EQq investment risk management	NA, Limit data	Early stage, more time needed beyond Year 1 for data collection.
3.4 Efficiency	EQr WE4F ensure partner can sustain impact	Limit stage, Limit data	Assessed in EQ1g. Continuous data collection needed, will be assessed in Final Evaluation.
3.4 Efficiency	EQ1k innovations used resources efficiently for max. impact on environment	Limit stage	Early stage; focus currently on Effectiveness. Economical use will be assessed over time.
3.4 Efficiency	EQ3 difference planned/delivered in Y1, and Y2-4	Limit stage	We do compare innovations plans w y1 results, e.g. 3.3.3: gross sales
3.5.1 Impact	KPI2 # end users	Full	Some limits, gaps in data as not all innovations are reporting.
3.5.2 Impact	EQ1g projects lead to Ag. Productivity, cc adaptation	Limit stage, Limit data	Critical question: data on all rounded factors e.g. land use, resource use, and particularly yields etc., urgently needed.
3.5.3.1 Impact	KPI3 food produced	Limit stage, Limit data	Critical question; measures of volume and area not fully reported.
3.5.3.2 Impact	KPI4 food processed	Limit data	Critical question: poorly reported.
3.5.3.3 Impact	EQ1e water efficiency	Limit data	Complex calculations needed; volume of water unevenly reported.
3.5.3.3 Impact	KPI6 water use reduction	Limit data	Complex calculations needed; volume of water unevenly reported.
3.5.3.4 Impact	KPI5 energy saved	Limit data	Complex calculations needed; volume of water unevenly reported.
3.5.3.4 Impact	EQ1f energy efficiency	Limit data	Rigorous calculations needed; volume of water unevenly reported.
3.5.4 Impact	KPI7 income increase	Limit data	Unevenly reported: contradictory signals from surveys and admin data.
	EQ1i income increase of women, BoP	Limit data	Unevenly reported: more data and analysis needed.
3.5.4 Impact	EQ2 attribution of impact to WE4F	NA: Limit stage Limit data	Decisive question: contribution of WE4F examined more data collection and analysis needed.
3.6.1 Sustainability	KPI1 innovations making profit (fraction)	Limit data	Unevenly reported, significance of the indicator needs assessment.
3.6.1 Sustainability	Gin10 new jobs	Limit data	Unevenly reported.
3.6.2 Sustainability	KPI8 tools, monitoring water, biodiversity	Limit data	Unevenly reported, further data collection on TAs needed.
3.6.3 Sustainability	Gin6 GHG emission	Limit data	Unevenly reported; possibly another tool needed to have comprehensive range in capturing data.
3.6.4 Sustainability	Gin45 land under improved management practice	Limit data	A late indicator, unevenly reported.
3.6.5 Sustainability	EQo WE4F support improved innovations' positive impact on all environment, climate, unintended effects	Limit stage	All data available (surveys and KIIs) analyzed.

Report section	Code: EQ, KPI or GIN	Code*	Explanation
	EQ1l impact on marg. groups, reduced # in poverty	Limit stage Limit data	More end user surveys needed. Limited data on direct impact (hh level, on-site); EIA scope too limited
3.6.5 Sustainability	EQ1m environmentally sustainable projects	Limit data	Cross reference to EQ1g; currently limited data.
3.6.5 Sustainability	EQ1n negative trade-offs	Limit data	Further data collection from innovation and end user surveys.
3.6.5 Sustainability	EQ1o innovations financially, socially sustainable	Limit data	A full set of social and environmental aspects need to be drawn together and assessed in end user surveys.
3.6.5 Sustainability	EQ1p public-private engagement balance	Full	Full analysis made from available data.
3.7.1 Hypotheses	EQHI WE4F investing is faster	NA	Comparative data on Grand Challenge Funds being assembled.
3.7.2 Hypotheses	EQHII with more progressed innovations achieving wider adoption	NA	Comparative data on Grand Challenge Funds being assembled.
3.7.3 Hypotheses	EQHIII acceleration oriented TA, IF increases change innovation scales	NA	Comparative data on Grand Challenge Funds being assembled.

* legend:

Full: addressed fully and conclusively

Limit stage: limited stage of the program; a longer program period needed to answer the question fully

Limit data:

- limited data available
- more time needed for data collection and analysis

NA: Not addressed; will be addressed in the Final Evaluation

ANNEX 15: METHODOLOGY

For reasons of space and to fix attention to the Findings, Conclusions and Recommendations in an otherwise long report, the details of the methodology are presented here as an Annex.

Data collection methodology

Data collection for the midterm report included data from the WE4F program's own M&E system, as well as data collected independently, through:

- Review and use of the WE4F Administrative Data
- Survey of innovations (grantees as well as those only receiving TA)
- Qualitative data collection through Key Informant Interviews (KII) with a sample of innovations and Regional Innovation Hubs
- Surveys of end users.

The main methods used for data analysis are:

- Data Quality Assessment (DQA) which has involved an intensive long process of downloading and assessing administrative data and has satisfactory results: the data gaps were mostly filled, while some data issues are unresolved.
- Triangulation of data, e.g., by use of surveys and qualitative data in comparing innovations' perception of the water- and or energy-saving qualities, or time- and/or cost-saving qualities, with data obtained from end users
- Extrapolation of trends to anticipate likely developments.

Sampling

The Evaluation Team developed a sampling frame from all WE4F program innovations in Excel. Sources for the Master File or sampling universe came from WE4F documents, Administrative Data, and from meetings with the WE4F Program. The Master File has been updated when additional data becomes available. The entire innovation portfolio is detailed in Annex 8.

Sampling of Innovations

The sampling universe includes a total of 37 innovations and 50 country sites. Since several innovations implement in different countries, a site refers to an innovation as implemented in a single country. Several innovations such as Alva Tech, RecyGlo and aQysta are implemented in several countries; this leads to the total number of sites being greater than the total number of innovations. Data was collected at each level: from the founding partners, RIH, innovations and this information provided norms and measures for the field surveys.

In February 2022. The team conducted this sampling exercise. The initial sample contained all 38 innovations available at the time: 18 from SSEA, 14 from MENA and 7 from SCA. The SCA CFI1 innovations were then removed as the Hub and its Innovations were not fully established, thus in SCA only 2 legacy innovations remained. From the remaining 32 (presented in Table 70), **only grantee innovations** (excluding 2 legacy and 1 TA only) were chosen. That created the sample of 29 innovations for the survey: the innovations with colored cells in the CFI1 or CFI2 columns. From this list, two innovations were removed as they were terminated (not having reached their targets).

Table 69: Number of innovations and sites per RIH, January 2022

RIH	Number of innovations	Number of country-innovations or sites
MENA	14	15
SSEA	11	14
Grand Total	25	29

The team generated a sample using multi-level sorting by criteria in order of importance, such as the RIH or geographic region (the most critical data cut), followed by country, innovation focus, innovation type, size of targeted number of end users, and female/non-female ownership. Innovations were disaggregated by country and tables generated as below.

Multi-stage sorting was undertaken from the sample frame made up of the MENA and SSEA innovations to establish a representative sample using these criteria:

1. Grantees
2. Innovation/Country
3. RIH: MENA or SSEA
4. Focus and Type: Water-Food, Energy-Food, Water-Energy-Food, etc.
5. Women-led/Women-owned.
6. KPI2: Y1 targeted end users

The team checked the results against the full sample frame, including the following: type, target Y1 end users, gender, RIH and made a table for the proposed Phase 1 Sample (Annex 8).

Using these procedures, the Evaluation Team arrived at a selection of 12 innovations (48% of all 25 grantee innovations) and 15 country-innovations (52% of all 29 sites in the Sample Frame) in the attempt to secure a representative sample (in terms of key criteria, but with a purposeful element, that of the practicality of undertaking the highest number of field surveys within the available time and budget). The Evaluation Team is working with WE4F Program to confirm the innovation sites, visit status and site localities of innovations. In addition, there is assistance being provided in relation to coordination with the activities of the WE4F External Surveyors.

The Sample Frame is systematically updated as additional data becomes available to quickly inform the universe of innovations and sites. Table 71 shows the sample made from the total number of innovations in all RIHs, and the number of sampled and non-sampled innovations by RIH.

Table 70: Names of Innovations in the sample by RIH, country, and innovation focus

Region	No.	Innovation*	Country	Innovation focus	Innovation type
SSEA (n=7)	1	aQysta Nepal	Nepal, India	water & energy	Water - Irrigation
	2	ATEC	Cambodia, Bangladesh	energy	Energy - Farm input
	3	Goat Trust	India	water & energy	Digital solutions
	4	Onergy	India	water & energy	Water - Irrigation
	5	Oorja	India	water & energy	Energy – Energy production and infrastructure in agriculture
	6	Pumpkin Plus	Bangladesh	water	Other
	7	Sumba Solutions	Indonesia	water & energy	Energy – Energy production and Infrastructure in agriculture
MENA (n=8)	8	Biomass	Lebanon	water & energy	Energy - Farm input
	9	Chitosan	Egypt	water	Energy - Farm input
	10	Compost Baladi	Lebanon	energy	Energy - Farm input
	11	IRSC	Egypt	water & energy	Energy – Energy production and infrastructure in agriculture
	12	Platform	Egypt	water & energy	Digital solutions
	13	Schaduf	Egypt, Sudan, Syria	water & energy	Water - Irrigation
	14	SOWIT	Morocco, Tunisia	water & energy	Digital solutions
	15	SUWACO	Egypt	water & energy	Water - Reuse in agriculture

Given the risks to field research posed by travel during the pandemic, access to end users, and the need to include one innovation from each country. This sample represents some over-sampling to allow for review and adjustment; the final sample will also include grantees in the

SCA RIH. The final effective sample will be governed by the conditions of the pandemic, availability of innovation leadership and budgetary considerations.

As presently, an analysis of the sampled Innovations and Countries shows that:

- There are 8 countries, 12 innovations and 15 sites (8 in MENA and 7 in SSEA).
- By focus, the 15 sampled sites are divided as follows: 2 Energy-Food, 3 Water-Food, and 10 Water-Energy-Food.
- Of the 15 in the sample, 8 are Women led/Women Owned.

In total, 12 innovations and 15 sites were selected (the “Sample”), 8 in MENA (53% of the total number of sites) and 7 in SSEA (50% of the total number of sites in SSEA), for a total of 52% of all sites in the Sample Frame. The team over sampled the Sample Frame through a process of selecting an innovation from each country, made proportional to the sample frame to the metrics of targets in end users (an indication of anticipated upscaling) and female owned.

By the focus area, the 15 sampled sites are divided as follows: 2 Energy-Food (33% of the Sample Frame), 3 Water-Food (60% of the Sample Frame), and 10 Water-Energy-Food (56% of the Sample Frame); as illustrated in Table 72: a breakdown of the number of Women Led/Women Owned by RIH as well as by the innovation in the sample. The full classification of all 15 sites selected for the sample is presented in Annex 8.³

Table 71: Women Led/Women Owned innovation in Sample

	Not women led		Women led		Grand total
RIH	NS	S	NS	S	
MENA	3	4	4	4	15
SSE Asia	6	3	1	4	14
Grand Total	9	7	5	8	29

Of the 15 innovations sampled, 8 are Women Led/Women Owned; the sample is broadly comparable to the Sample Frame with the exception of SSEA where there appears something of an oversampling of those innovations which are women led and owned. The team worked closely with WE4F and the Secretariat to obtain missing information on the RIHs. Much of this data is vital to understanding the nature of the innovations and planning data collection.

Table 72 compares the innovation focus proportions of the sample with those of all CFII innovations, and then against all innovations.

Table 72: Distribution of sample by innovation focus, compared to CFII and all innovations

Innovation focus	Sample (n=15)		CFII innovations (n=31)		All innovations (n=81)	
	Numbers	Proportion	Numbers	Proportion	Numbers	Proportion
Water	2	13%	2	6%	22	27%
Energy	2	13%	6	19%	19	23%
Water & energy	11	73%	23	74%	39	28%
ND	0		0		1	1%
Total	15	100%	31	100%	81	100%

Table 72 shows the number of innovations that are women led, in the sample, in the CFII innovations, and in all the innovations. The table shows that the sample innovation focus is fairly similar to that of all CFII innovations.

Table 73: KII innovation sample, representation women-led innovations compared to CFII and all innovations

Women-led	Sample	CFII SSEA and MENA	All innovations
Yes	8	15 (8 + 7 respectively)	15
No	7	14	14
ND	0	17	52
Total	15	46	81

The table shows that in the sample the proportion of women-led innovations is close to that in all CFII innovations and all innovations.

Data analysis plan

In summary, the team prioritized the administration of an innovation survey and interviewing members of the RIHs, before interviewing innovations and end users; the innovation survey and RIH KIIs come first as these provide the basic data on the program and its implementation. Data collection was planned geographically and hierarchically. The Evaluation Team started with well-established hubs and moved down the organizational hierarchy towards the country sites.

The surveys and KIIs serve to provide the information and norms and standards relating to the innovations, the end users and size of farms, crop yields, income, poverty, and other key aspects of agriculture, such as the agricultural calendar, and the working of the innovation. This also ensured that the Evaluation Team and the local consultant were well informed of specific norms and, importantly, on approaches to establishing sensitive information such as the current incomes of end users. All this information is critical to the accurate collection of data and the successful timing of surveys to ensure that harvest data is collected after the most recent harvest.

This section sets out the procedures to assemble and clean the data in a dataset to channel carefully identified incoming data and prepare for rigorous analysis as set out below. The evaluation involves a considerable range of evaluation questions (and many sub-questions which also require appropriate data collection). In Table 74 the numbers of Evaluation Questions are presented requiring data as evidence to make findings.

Table 74: Number and focus of Evaluation Questions and subsidiary questions

OECD Criteria	Innovation	Program	Total
Relevance	2	3	5
Coherence	1	2	3
Effectiveness	14	6	20
Efficiency	2	4	6
Impact	6	11	17
Sustainability	6	2	8
Final evaluation only	4	3	7
	35	31	66

Please note that these numbers of questions are not directly correlated with the evaluation questions presented in Annex 2 for this reason: the Evaluation Questions are often bundled i.e., made up of a primary question with several subsidiary questions. Each primary and secondary requires its own data to be collected as evidence to findings.

The data collection to answer this extensive set of primary and subsidiary evaluation questions requires further questions to gather the necessary data as evidence. These “questionnaire questions” are set out in Annex 2 which assembles the three questionnaires against the evaluation questions.

These are not yet separated into the final instruments in KIIs and surveys for this reason: the subsidiary questions can still be read, from left to right, running across the end users, innovations and RIH. This is a distinct advantage as every question is tightly related to the primary EQ and the appropriate coding provide the necessary perspective to see the integration of each of the lesser questions with the greater EQ. This sets the frame for the final dataset which has columns headed with questions and codes allowing the data to be readily utilized in cross-sectional analysis.

The subsidiary questions are necessary to capture the precise data to answer the broader questions:

- Data collection procedures for contracting Dexis local consultants, scheduling RIH/country data collection, training Dexis local consultants, logistical arrangements.
- Data management plan: this will include a coding system to apply to data collection instruments, sources, document reviews, databases, data quality control.

A strategic plan was prepared based on the preliminary sample of innovations as suggested above. This occurred for the SSEA and MENA hubs but not, yet, for the Southern and Central African hub which is still assembling innovations.

Administrative data validation process

The validation processes for the Team surveys are set out here; following data assembly and cleaning, Initial Data Analysis (IDA) followed. This led on from the handling of missing values and making transformations of variables (from acres to hectare, etc., hopefully minimal) as needed. Frequency tables were run to provide a collective examination of the data and to spot obvious errors. The validation process continues, as time permits, with the circulation of descriptive tables and selected cross-tabulations for feedback and validation, extensive discussion of initial analysis and finally the circulation of preliminary findings for feedback.

Data security

The protection of personal identities and confidential data, particularly of those interviewed in field surveys and data security for this comprehensive data set, is of high concern. The rigorous procedures set out in the General Data Protection Regulation (GDPR) of the European Union (EU) are followed. The team followed the protocols as summarized in Eurostat procedures to ensure confidentiality in 'Personal data' (any information relating to an identified or identifiable natural person or "Data Subject") and "Confidential data" (relating to data in which statistical units could be identified, either directly or indirectly, thereby disclosing individual information).⁴ This ensures the protocols relating to the EU's were followed. There is the need for due sensitivity in relation to confidential commercial data and protocols were developed together with WE4F to ensure such confidentiality as appropriate. In addition, the team followed all relevant USAID data security requirements as outlined in ADS, chapter 545 and through consultation with the designated Information System Security Officer, McKenzie Horwitz.

Qualitative Analysis

Qualitative data was gathered to provide interpretation and meaning to results. This was collected as direct responses from participants in the various levels of WE4F and presented as carrying value and in giving interpretation to the results of quantitative data analysis.

A full set of the EQ as well as the subsidiary questions to both survey and KII instruments is carried in Annex 2. The subsidiary questions can be read, from left to right, running across the end users, innovations and RIH which provides the necessary perspective to see the integration of the lesser questions with the greater EQ.

The team prepared question guides to carry interview questions flowing from the evaluation questions in the KII. Any questions which have a quantitative character are incorporated into the online survey for innovations and end users.

To code qualitative data into Nvivo, adaptations were done for each RIH/country, to consider any different terms and definitions; this is specified in a mini manual.

These KII are designed to be exploratory and to encourage a broad view of the whole Program; providing particularly the data which provides evidence in answering the final evaluation questions and hypotheses.

These question guides may be of considerable length because of the range of questions and the KII may need more than one session with an interviewee to complete.

Each of the question guides are a NVivo aligned instrument, tested in the first KII reviewed and improved. The NVivo software is initially more time-consuming but, after initial engagement, provides rapid data capture and auto-coding which will enable deeper and more rigorous analysis and quicker reporting.

The KII was conducted by the team at the higher levels of the Program AS online research. The KII question guide was designed to engage the diverse perspectives of many participants particularly on the broader questions and cross-sectional issues that can be simultaneously captured. This should provide an advantage in exploring such issues as unanticipated impacts and the instrument of the question guide will lead on to rigorous analysis and quicker reporting.

The team prepared an instrument utilizing many of the generic questions in the KII question guide which are reticulated to Evaluation Questions.

NVivo is the software of choice. It provides for deep analysis of text to lead to coding and search queries to combine multiple words and phrases using Boolean operators. This can be a valid method of establishing evidence for the truth or falsity of statements and questions through the combination of associated terms. The illustration below depicts searches for items containing either or both of two terms (OR), searching for items containing both terms (AND), searches for items containing the first term but not the second term (NOT), and finally searches for items containing the required term and optionally the second term. Such analytical procedures are explored and assessed.

Quantitative Analysis

Quantitative data is crucial to the evaluation; all involved and who read the evaluation report will want to see the numbers on critical questions and then the qualitative data to provide meaning and explanation.

The questionnaires cover all 66 evaluation questions and subsidiary questions. With the wide-ranging data generated, the team has recognized the need to guide the data carefully to the right place in a comprehensive dataset.

Each question was coded by the evaluation question (EQ), the related KPI, the Theory of Change, and the Illustrative Indicators. This enables each series of data to be identified and captured in a separate column in a final dataset. Since there is data from several sources (from WE4F, Dexis or directly from the RIH) the Team established a clear protocol for the integration of such data prior to analysis.

Quantitative data. The data came from several sources: comprehensive administrative data from WE4F M&E, survey data from the surveys completed by the Innovations and RIHs; and from the field surveys.

Data cleaning and assembly. The first task is to source and collect data, to process, systematically label and clean the data, to note the irregularities and incidence of missing values. To the primary Evaluation Questions will be added the data arising from the specific questions in the questionnaire. This will lead to an extensive set of columns running across the dataset, possibly 180 or so, requiring careful assembly, management, and appropriate software.

An Initial Data Analysis (IDA) followed; this focuses on the handling of missing values and making transformations of variables (from acres to hectare, etc., hopefully minimal) as needed. Frequency tables was run.

Simple descriptive tables and cross-tabulations were undertaken and distributed for discussion. Proxy indicators were identified as needed and composite indicators compiled to assemble single indicators into a single index based on an underlying model of the multi-dimensional concept that is being measured.

The data was assembled and compiled initially in Excel. Each new addition of data had regular analysis to establish the frequencies, etc., and to systematically enter and upgrade the metadata (such as the source of data, number of responses, a glossary of codes in EQ, KPI, etc. as needed to establish the identity and necessary location of data, etc.). Any new attributes, such as the type of Technical Assistance or Financial Advice, were entered.

Data quality is central to the evaluation before, during and after data collection. Accuracy and good quality data achieved at the crucial base of the pyramid, with the end users, through the following procedures:

Pre-survey preparation is undertaken through the surveys and KII with the relevant RIH, and Innovation help establish norms on such issues as ranges in the size of plot with local and universal units, yield per hectare and advice about appropriate sites to ensure rigorous cluster sampling of all end users.

During the survey the local consultants used this information to establish ranges and then categories in flash cards to capture sensitive information such as size of farm, yield, and income as necessary. From experience this can help elicit the appropriate sensitive data without the respondent having to make a statement.

In relation to much of the data at the higher levels, the sample of innovations, RIH, TA and other experts will be comprehensive and, if possible, built on an all-inclusive set of interviews. This ensures a highly representative sample at these levels.

The Team reviewed the draft KII and other instruments to ensure that no gaps remain in agricultural aspects. Particular attention went to measures of agricultural production and to the types and forms of interventions. The team also examined the types of crops and their significance to households (for instance are the crops subsistence or cash crops and is the intended intervention for a partial or greater aspect of agricultural production).

After establishing the **systematic reliability of the data** underlying indicators, procedures in data analysis were undertaken to construct tables of evidence to answer the evaluation questions. This occurred in Excel; the resulting tables were carefully cross-checked, and the syntax and tables saved in Share Point.

Making findings: Integration of Qualitative and Quantitative Analysis

One of the challenges in analysis and reporting is giving equal weight to the quantitative and qualitative data to ensure that qualitative data is not simply an aside to the quantitative analysis.

A **concurrent triangulation strategy** was employed in which the qualitative and quantitative phases of analysis and presentation are conducted at the same time. An appropriate weight is needed for each phase, with the results of both interpreted concurrently to determine agreement, supporting evidence, in the data collected by the mixed methods. Qualitative methods and data can be a useful additional insight of the results of quantitative surveys.

As appropriate statistical results may be presented first followed by rankings, quotes from the qualitative phase used to provide background and meaning. Qualitative data will, however, also be presented independently in the form of case studies, profiles of the greatest achievement or failure, ranked responses by men and women and in other ways.

Concurrent analysis of relationships was undertaken by various mechanisms (quantitative or qualitative) to examine interrelationships such as sets of indicators underlying for a particular Strategic Outcome or Intermediate Result. Alternating between quantitative and qualitative data, the analysis progresses to establish findings.

Testing and validating the three overarching WE4F hypotheses

The **three overarching hypotheses** provide the most encompassing perspective over the whole program and its parts and will be used to draw conclusions to be of lasting value.

In general, through the WE4F, the Founding Partners hope to source and accelerate high potential solutions that have multiplier effects at various levels of a country's economy and food value chain.

The three hypotheses, which cut across the many specific evaluation questions, require meaningful and practical measures of WE4F's development impact potential. Definitive confirmation or rejection of these hypotheses will be of considerable value in policy decisions relating to agricultural, water and energy interventions.

Discussion of the hypotheses

All three hypotheses establish WE4F as distinct from other Grand Challenge for Development (GCD), the latter being more 'traditional' or more sectoral (Hypothesis I), or less selective, less focused on more progressed innovations that already achieved early adoption i.e., 1,000 to 10,000 end users (Hypothesis II), and less providing in terms of TA and investment facilitation (Hypothesis III).

The evidence bases for each of the questions identified below substantiates *an aspect of the hypothesis* and provides evidence for the validation or rejection of the hypothesis.

Hypothesis I - By investing in innovations at the water-energy-agricultural nexus, the *pace of development* in all three sectors will be substantially faster than if we relied on "traditional" (more sectoral) development programming alone.

The hypotheses and final evaluation questions will only be thoroughly examined in the final evaluation itself. Prior to that point, evidence to validate or nullify this hypothesis shall be gathered in the course of answering the following questions:

1. (How) is a nexus-based (multisectoral) innovation approach more enabling for innovations, where a more sectoral development program is not (or would exclude innovations)? (EQHI, compare with other programs)
2. Considering annual client (innovation end-user) numbers buying the innovation (y0-baseline, y1, y2, y3), what is the annual client number growth rate? A growth curve will be drawn for each innovation (EQ1b/1&2). While the data will be prepared, no findings can be made until the end-stage of the evaluation.
3. Did WE4F projects meet their agricultural productivity targets? What were the unintended effects of WE4F supported projects on agricultural productivity? (EQ1g/1; EQ1g/1a)

Hypothesis II - By sourcing technologies and business model innovations that have already achieved early adoption (1,000-10,000 end users), WE4F innovations are much more likely to transition to scale (10,000-1,000,000 end users) or reach wide-scale adoption (greater than 1,000,000 end users).

This is about the timing of support in the trajectory of client-number growth. WE4F seeks to provide support at a later stage, where innovations have already reached at least 1,000 users. For this hypothesis a comparison is made between early- and later-stage innovations (all innovations or within specific categories/types of innovations or the investment cost of an innovation),

looking at client-growth-curves. To validate or nullify this hypothesis requires answering the following questions:

1. Considering annual client (innovation end-user) numbers buying the innovation (y0-baseline, y1, y2, y3), what is the annual client number growth rate? (Make a curve for each innovation) (EQ1a/4, EQ1b/1&2)
2. Where in the client-growth curve is the WE4F support effect the strongest?

Hypothesis III - By investing in acceleration-oriented TA and IF (including for end users to purchase WE4F innovations), we will substantially increase the likelihood that innovations will have the knowledge, tools, and resources to scale their innovations.

To validate or nullify this hypothesis requires answering the following questions:

1. Comparing WE4F with other programs, what is the share of innovations that reach their sales targets? (EQ1a/3)
2. Of all **TA and IF** provided, which elements are the most effective in getting innovations to reach more clients? (EQa/1&3; EQ1b/1&2; EQ1/1; EQ1/1; EQm/2; EQn/1; EQp/2)
3. As for Hypothesis I: (How) is a nexus-based (multisectoral) innovation approach more enabling for innovations, where a more sectoral development program is not (or would exclude innovations)? (RIH KII, EQb/1; compare with other programs).

It is difficult to clearly state how an innovation would have fared in terms of pace of adoption without the support from WE4F. Data points to be collected include adoption, speed of adoption, types of support provided, satisfaction of the innovation with WE4F support, and innovation's own assessments of pace of adoption. Analyzing these aspects will allow the team to make a judgement on the hypothesis with a medium level of confidence. For clarity of concept and use, the indicators are reviewed in Annex 9 which presents the indicators as used in this evaluation. This also considers data available for these indicators.

Data Quality Assurance of M&E Data

This evaluation relies strongly on Monitoring and Evaluation otherwise termed administrative data. Such data goes beyond the basic information on the universe of Innovations and their status to include key indicators (both KPI and GINs). This was necessitated by the need to protect the innovations from constant and repetitive requests for the same data and to avoid “research fatigue” on their part and possible resistance to respond.

This condition is highly unusual in an evaluation which needs to maintain independence of research, data gathering and analysis of its own surveys. This was, however, accepted by the evaluator for three reasons:

- a. this available data would be subjected to a vigorous Data Quality Assurance set of exercises to ensure it meets USAID's five quality standards—validity, integrity, precision, reliability, and timeliness
- b. to avoid the possible unnecessary duplication of data requests which could lead to accessing data which may have differed from that of the Secretariat but for reasons of irregular compilation and making insignificant differences and
- c. access to the M&E data through the Secretariat would enable the checking and correction of identified irregularities.

The full DQA report is included in Annex 12.

Before the data analysis could begin the data needed to be compiled, organized, cleaned and in some cases corrected. From a study of the procedures of DQA set out in USAID documents, the focus in data quality procedures, will be on the following generic issues:

1. EXTRACT: Definitions of indicators in PIRS and on types of disaggregation
2. PREPARE: Methodology in data collection used by M&E identified
3. EXPLORE AND CHECK: Use of data collection procedures by innovations identified and use confirmed
4. VERIFY: Use of data quality procedures by USAID confirmed by evaluator
5. USE AND ANALYZE: Data verification by USAID undertaken and confirmed

Table 75 provides a summary of the issues and limitations that were identified during the verification process of the data.

Table 75: Types of challenges in data quality analysis (issues and limitations)

	USAID Data Quality Assurance criteria	Identified issues	Resolution
1	VALIDITY – Data should clearly and adequately represent the intended result	Missing characteristic Unexplained change Clarification needed	A table was shared with specific questions regarding numbers and units missing or not making sense
2	INTEGRITY – Data collected should have safeguards to minimize the risk of transcription error or data manipulation	Missing characteristic Missing data, Incorrect total	A table was shared with specific questions regarding numbers and units missing or not making sense
3	PRECISION – Data have a sufficient level of detail to permit management decision making, e.g., the margin of error is less than the anticipated change	Data Clarification and Missing Data Some data not disaggregated by country or gender (Clarification 14?) The PIRS for Gin6 Carbon emissions	When possible, this is done, if it was not done then the data is not there, will have to proceed as is. The PIRS was updated for ease of use and now it is tCO ₂ rather than tCO ₂ per kg of food)
4	RELIABILITY – Data should reflect stable and consistent data collection processes and analysis methods over time	Innovations did not provide proper documents so either reported as No Data or at 80% of results reported (M&E data)	Continuous training has been undertaken by the innovations and has been shared with the ET
5	TIMELINESS – Data should be available at a useful frequency, should be current, and should be timely enough to influence management decision-making	Contradictory data, e.g., target lower than baseline, some older data still in the table. The AWP were updated while the ET was working on the data analysis. This information had to be updated to continue the analysis.	The baselines were set at “0” and “No” Questions regarding older data and/comments were addressed New AWP information was used

The year 1 data for MENA and SSEA for the CF11 innovations is currently available and there were some issues with typos and missing data that were corrected with the help from USAID, a summary list of these issues is shared in Table 10. The complete list of issues is listed in Annex 12 – DQA report. There were also issues where a zero was recorded due to lack of documentation or since the data will be collected by the external surveyor but is not yet available, this is now recorded as “ND” no data to reduce confusion. The table in Annex 12 also lists the data clarification that was asked of USAID to help the Evaluation Team fully understand the data available

The data limitations/gaps summary is included in Table 77 with a complete detailed list in Annex 7. Some of the limitations include not having targets that were disaggregated by gender and/or country, not having budget projections for the SSEA CF11 innovations in the AWP, having information reported a zero due to lack of documentation and other reasons and having some target information missing for indicators.

Table 76: Overview of key DQA issues

Issue/Question	Location	Resolution
Some data not disaggregated by country or gender	SSEA and MENA	When possible, this was done, if it was not done then the data is not there and will have to proceed as is
Uncertainty about Unit measurements for KPIs	Gin6, GIN6 liters of water	PIRS were updated and have become clearer and more user friendly.
Inputs do not add up		These were typos and were corrected
Missing data (such as types of end users, and units for Gin1)	Gin1, GIN9, GIN6	This data was added when available
How should part time jobs be counted	Gin10	Counted as full-time job equivalents
Clarification of the baseline response for Yes/No indicators	KPI1, Gin13, Gin23, Gin41	The baseline is No
The Innovation list of July 2022 is missing innovations that are no longer in the program		The 4 terminated innovations were added

The DQA proceeded with the close cooperation of the Secretariat's M&E which was also engaged in improving data quality with training of innovations. Following the DQA exercise all available efforts had been made to validate and verify all the data available; there were, however, limits to the universality of the data (for instance, some KPIs were not recorded in one Hub, etc.) and there were other qualifications necessary.

The summary of key data limitations/gaps which are limitations or gaps not possible to resolve is included in Table 77; a complete detailed list is provided Annex 7.

Table 77: Overview of key data limitations

Issue/Question	Location
Reported as zero since no documentation is provided and/or the information is not available as it will be collected by an external surveyor, or innovation miscalculated the results	SSEA and MENA Gin28, GIN7
For some innovations' results the number is reduced to 80% due to lack of details on end users	GIN2
Due to limited information the gender was disaggregated based on country demographics of end users not on information from the innovation	SSEA and MENA Gin6, GIN7, others
The SSEA CFII AWP do not contain a budget sheet	SSEA CFII AWP
Some of the target data is missing for indicators	SSEA CFII AWP
Results and targets are not disaggregated by country	GIN5, PKI 6, Gin6, etc.
Assumption that all baseline is zero	KPI1, Gin13, Gin23, Gin41
As of August 15th, no data has been received for SCA	M&E data
Formatting for the AWP is not consistent	MENA, SSEA and SCA
The targets provided in the AWP are not disaggregated by gender, country, income quintile	AWPs
Do not have country, innovation focus, and innovation type, sector focus and women led for all innovations	M&E data

Analysis of unresolved data limitations finds that these arise from the 81 AWP were read, investigated, and found to be of different formats:

- Each RIH has a different format and AWP are presented in spreadsheets
- The SSEA format includes a workplan, followed by a narrative (summary, major milestones).
- In SSEA there are multiple tabs in the spreadsheets with limited data and no financial information.
- In MENA the AWP are formatted differently with KPI, milestones, and LOP targets.
- MENA also presents a narrative per year, includes TA support and a budget.

Some of the data limitations include not having targets that were disaggregated by gender and/or country, not having budget projections for the SSEA CFI1 innovations in the AWP, having information reported a zero due to lack of documentation and other reasons and having some target information missing for indicators.

Limitations of data from innovations' AWP

Data reliability: WE4F funding tranches disbursed is tied to achieving targets for technical and financial indicators (In the milestone plan). Annually, milestones are reviewed against market conditions to ensure that the innovation is still viable and with potential to achieve wide-scale adoption. Thus, if milestone targets are not met, the award can be terminated (in some circumstances minor adjustments of milestone targets can happen).

Provisional Finding – This system appears to be fit for purpose, however, the innovations that struggle to reach their milestone targets are under pressure (risking grant termination) and this could potentially create a reporting 'bias' or unreliability. After completing the data analysis and verification process, the Evaluation Team has the following recommendations to address issues identified during the analysis of the M&E data:

- The same format by RIH can be used for reporting for each of the innovations so that it is easier to quality check
- Continued trainings to keep procedures and methodologies are kept up to date and current for the innovations.
- Improve upon the coordination that was taken to review, clean up the data and organize it together into one from the SSEA and MENA year 1 results, annual results and the 81 AWPS. We note that the CFI1 SCA data will soon be available.

Limitations of the evaluation

Particular attention to the limitations associated with the evaluation methodology (e.g., selection bias, recall bias, unobservable differences between comparator groups, etc.) Considering the risk analysis (in the design, the risk table), there are no new risks. The Evaluation Team is conscious of the risks and limitations associated with delivering an evaluation of the quality expected by the Founding Partners and the wider WE4F community. To overcome these risks and limitations, the team drew on the considerable strengths of the team members with relevant expertise on the nexus of water, energy and agriculture, and significant experience in a few WE4F portfolio regions and countries. All have had solid experience with multi-country and multi-level evaluations.

Table 78: Key risks identified and their mitigation

Risks	Mitigation Measures Taken
COVID-19 Pandemic and Environmental Risks	
Undertaking an Administrative Data DQA, closing gaps in availability and developing a dataset with high verification levels	The Evaluation Team sequenced the data collection and review of the administrative data to the extent possible in relation to when the RIH are launched and implemented.
Data Collection and Analysis Risks	
Insufficient access to customers and non-customers to understand surveys of sufficient numbers of end users to ensure confidence in the innovation's success factors.	Efforts will be made to plan as far in advance as possible with the innovations to impress upon them the need to meet with as many customers and non-customers as feasible within the allotted time. In addition, access is needed to Customer Response Strategies which the Innovations have undertaken.

Risks	Mitigation Measures Taken
Insufficient budget and time to undertake a representative sample	On sampling, at this stage, the team does not have a full list of estimated end users per innovation, and their locations. Site selection and cluster sampling <i>at the site</i> is critically important in sampling. Questions to help establish 'representativeness' will be raised in the survey and in KII's. For efficiency, support from the innovation will be requested in terms of orientation and travel to the site and advice is also requested on translation as needed. If possible, local maps will be accessed in advance of the consultant proceeding to the field to undertake surveys.
The high number of Evaluation Questions and the availability and willingness of interviewees to respond with detailed or complete answers.	Establishing questionnaires for KIIs and surveys, to elicit meaningful and accurate responses, is difficult; and responding requires lengthy time commitments from interviewees. The team is working on minimizing the interview length while maximizing the data gathered through the questions. Questionnaires will be tested. The team will also use the Administrative Data to supplement field data.
Possible uneven quality of data gathered by external surveyors lessens confidence in indicators of results.	Confidence in the data is being ensured by careful construction of questionnaires on a selection of indicators and preparation of local consultants. The interviews include some questions which overlap to some or other extent with each other, allowing for triangulation. This is also done for similar questions asked to both end users and innovations, or both innovations and RIH. As part of the Dexis quality assurance, every deliverable will pass from LC Hemson to the PMU of WE4F, for a final quality check before submission to the client.
Timeline for the recruitment of the local/regional consultants for the data collection	The PMU will work closely with the Evaluation Team to recruit in accordance with the sequence of data collection sites to mitigate potential delays to data collection.
Samples of innovations may not be sufficiently representative of the portfolio. The sample of end users may also not be sufficiently representative of all types and layers.	Budgetary and other considerations lead to relatively small samples being achieved among End user groups. We need to confirm with the RIH that the information being collected during visits is sufficiently diverse to cover as many different kinds of interventions across as many geographies within the portfolio as possible within the time and funding constraints. Given the diversity of projects and the purposeful element in sampling, findings from the sample may not infer findings in the universe of the WE4F program. The methods of hierarchical modeling could assist in dealing with the challenge of nested data (i.e., the close association among respondents in the same cluster). The sampling strategy for all research should be synchronized between M&E and Dexis and, if possible, a panel established.
Disaggregation of household income to that of women and men's income is difficult to achieve	Since most women farmers participate in agricultural activities as part of a household together with their husbands it is difficult to measure their income separately (IM4.1). To mitigate this, the household income indicator will have an additional proxy indicator where women self-report: in a survey question on the estimated female/male share of the additional income and other benefits, and in qualitative interviews on their contribution and compensation in material terms.
Each innovation is unique and there is a challenge in ensuring comparability of data across this diverse group of innovations	The WE4F Evaluation Team will need to be mindful of this challenge at all stages of the analysis and to assess and ensure comparability in undertaking analysis.
The Evaluation Team does not know what data will look like from the Salesforce ICT platform and the data transfers timeline.	The WE4F Evaluation Team has worked closely with the WE4F Program through the DQA exercise to align Dexis and the Salesforce data and update the work schedule as needed.
The full set of SCA RIH information was not available	The team will sequence MENA and SSEA RIHs first and will update the schedule and sampling with SCA Innovations once that data is available.
Achieving knowledge and understanding of the relative contributions of various agencies within and without the Program.	The team will work to triangulate from multiple sources in assessing contributions and proportional contributions from many points of support. In addition, process tracing will be planned and undertaken to trace the movement from input to output and finally to impact on end users.
The comparability across different GCF in terms of costings is challenging as each operates in different ways and offers different support. Finding the right comparators may not be straightforward.	The Evaluation Team recognizes that this may be a challenge and will work to reduce this risk particularly by liaising with Syspons to help clarify approaches to this issue and seeking advice from policy makers who have experience in several GCF.

Risks	Mitigation Measures Taken
Difficulty in assembling responses from control group without having an incentive to report to this WE4F Evaluation Team.	The Evaluation Team has attempted to construct controls but there have been many challenges. In the interview introduction (protocol) will explain that the interview questions are not just to gather data but also useful to reflect on one's own business. Further, a lottery will determine which control group company is invited to one (or several) innovating companies to (volunteer to) host a peer learning gathering about agri-water-energy innovation. Potential volunteer company (or companies) are approached informally through WE4F's network (alternatively, interviews with WE4F innovations could end with a question to ask whether they would be interested in hosting a meeting between companies).
Impact 3, Illustrative Indicator (II-IM3): on GHG emission: "Total GHG emission/year saved by end users through use of products/ services of WE4F innovations." The impact notes 'along the food value chain' and the II-IM3 secondary data source is 'lifecycle assessment'. This may suggest a wider scope: the emission effect along the lifecycle of the innovation.	Estimating emissions is a herculean task; the Team will explore the CLEER Tool (The CLEER Tool is a user-friendly calculator based on internationally-accepted methodologies, enabling users to calculate emissions reduced or avoided from clean energy activities, www.cleer.org) as a resource as a way of assessing pre/post changes in emissions. The following needs to be undertaken: The Evaluation Team will quantify the <i>fuel</i> effect directly at farm/end user level, comparing pre- and post-innovation fuel use (efficiency, fuel type change); this corresponds to KPI5 (total energy saved). The Evaluation Team will identify, by comparing pre-and post-innovation, non-fuel emission <i>factors</i> along the lifecycle of the innovation, on-farm (e.g., changing farm practices) and off-farm (through input use, by-products, transport, etc.). But given the complexity, the emission effect cannot be quantified for a lifecycle of innovation-related products, and a comprehensive carbon balance cannot be produced.
Gaps in the availability of Administrative Data	One limitation was the data quality, initially. These limitations were extensively discussed in the previous section 2.4. Raising data quality issues was necessary, and there were gaps in the WE4F administrative data, however, close collaboration with the WE4F secretariat worked out well, and many issues were clarified and/or resolved. This collaboration helped to produce WE4F data to an acceptable, useable level.

Data collection progress

Table 79: KII schedule for innovations

Regional Hub	Date completed	No.	Innovation KII	Country	Date completed	
					Part 1 of Phase 1	Part 2 of Phase 1
SSEA	Part 1: May 5, 2022	1	aQysta Nepal	Nepal, India	NA	NA
		2	ATEC	Cambodia, Bangladesh	May 18, 2022	August 15, 2022
		3	Goat Trust	India	May 18, 2022	June 4, 2022
	Part 2: May 17, 2022	4	Onergy	India	May 18, 2022	May 18, 2022
		5	Oorja	India	May 18, 2022	May 18, 2022
	Part 3: July 20, 2022	6	Pumpkin Plus	Bangladesh	May 18, 2022	June 3, 2022
		7	Sumba Solutions	Indonesia	NA	NA
MENA	Part 1: May 10, 2022	8	Biomass	Lebanon	May 12, 2022	May 12, 2022
		9	Chitosan	Egypt	May 12, 2022	August 8, 2022
		10	Compost	Lebanon	May 12, 2022	May 12, 2022
	Part 2: August 8, 2022	11	IRSC	Egypt	May 12, 2022	August 8, 2022
		12	Platform	Egypt	May 12, 2022	May 12, 2022
		13	Schaduf	Egypt, Sudan, Syria	May 12, 2022	May 12, 2022
		14	SOWIT	Morocco, Tunisia	August 9, 2022	August 9, 2022
		15	SUWACO	Egypt	May 12, 2022	May 12, 2022

Innovation Survey: 12 Innovations from CF1 participated in the survey administered through Survey Monkey.

SSEA End User Data Collection: Data collection began on July 31, 2022, with the Goat Trust (Nandinandan Breeds and Seeds) innovation, as well as the Oorja Development Solutions innovation, where the local evaluator travelled to Lucknow, India, and Nanpara, India to conduct

end user data collection until July 30th, 2022. On August 31st, 2022, the local evaluator travelled to Kathmandu, Nepal and Lalitpur, Nepal to conduct data collection with the AQysta Innovation until September 3, 2022. Additionally, the Local Evaluator conducted Virtual data collection with the Pumpkin Plus Innovation. We anticipate sampling from a universe of 3,155 potential End Users.

MENA End User Data Collection: Data collection began on September 5, 2022, with the Chitosan Egypt, Integrated Renewable and Sustainable Communities (IRSC), and the Platform for Smart Solutions Innovations and is scheduled to go until September 24th, 2022. This will be supplemented by virtual data collection visits to the Sowit Maroc Innovation from September 5, 2022, to September 5, 2022. Due to current local situations in Lebanon on the ground, and time constraints for the Mid Term Evaluation, the team decided to primarily conduct data collection in Egypt rather than traveling to Lebanon or Jordan. We anticipate a universe of 925 potential End Users.

SCA: Due to where the South-Central Africa regional Hub is in its development, the team decided in conjunction with WE4F to conduct data collection later in the evaluation's period of performance when the innovations and end users are ready.

Table 80 includes the innovations, countries and no. of end users that responded to the local evaluators.

Table 80: End user surveys: innovations and countries

Regional hub	Innovation	country	date completed	
			start date	end date
SSEA	aQysta Nepal	Nepal, India	Aug 31 st , 22	Sept 3, 22
	Goat Trust	India	July 31, 22	July 30 th , 22
	Oorja	India	July 31, 22	July 30 th , 22
	Pumpkin Plus	Bangladesh	Virtual	Sept 30, 22
	No. End Users	143		
MENA	Chitosan	Egypt	Sept 5, 22	
	IRSC	Egypt	Sept 5, 22	
	Platform	Egypt		TBD, Sept 24 th , 22
	SOWIT	Morocco, Tunisia	Virtual, Sept 5, 22	Virtual, Sept 5, 22
	No. End Users	20		

There have been challenges in conducting the field surveys in MENA countries and discussions with the Secretariat occurred to gain access and build a database of end users from which to sample and conduct the surveys.

ANNEX 16: COMPARATIVE INFORMATION ACROSS GLOBAL CHALLENGE FUNDS

In the SWFF evaluation, the evaluation team assembled some information to compare (efficiency of) programs, as shown in Table 81. Fund Management (FM) costs and are presented beside beneficiary numbers, awardee numbers, and funds leveraged.

Table 81: Administrative costs of challenge funds (source: SWFF evaluation report)

Challenge Fund	Beneficiaries	Awardees	FM as % of total fund budget	FM as % of fund grant value	Leveraged funds	Source(s)
AECF REACT SSA	16m (by 2017)	268 companies	30%		US\$658m	IPE Triple Line Sida Report + Website: //aecfafrica.org/about-us/who-we-are (accessed 22 Jan 2020) (Awaiting further info)
Amplify Change (2014)	N/A	757	N/A	N/A	N/A	Amplify Change website (Accessed 14 April 2020)
Demo Environment			22.3	28.7		IPE Triple Line Sida Report
Global Innovation Fund (GIF)	87m	38	24.2	31.9	US\$69m concurrent US\$165m follow-on	GIF Annual Review (Dated May 2019)
Innovations Against Poverty (IAP1)	19k new jobs + 567k access to goods & services	25	N/A	N/A	US\$12m+	IAP Website: Accessed 14 April 2020
Making All Voices Count (MAVC) (2012-17)	3.15m	178	57.1	133.0	US\$2.5m+	MAVC Final Evaluation and correspondence with IMC Worldwide
Powering Ag (PAEGC)	234k	24	15.1	17.8	US\$68.5	PAEGC Financial Information (FY19) and correspondence with USAID
Securing Water for Food (SWFF)	7.25m	24 (active & graduate)	26.2	40.9	US\$25m+	SWFF Correspondence and SWFF Results Database
Sustainability & Resilience (2016)	N/A	N/A	4.9	5.2	N/A	IPE Triple Line Evaluation of Sida's GCF. As from S&R Activity Report 2017 - No

In addition, Table 82 is from Sida's evaluation; it compares Sida's global challenge funds.

Table 82: Fund management costs of Sida's global challenge funds (source: table 6.16)

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	44.1%	78.9%	SWFF Budget Narrative Y4 Update
PA	m USD	49.09	24.47	18.78	38.3%	76.7%	PA Annual Report Financial Y2017
Demo Environment	'000s SEK	58 800	45 651	13149	22.4%	28.8%	Demo Environment III – AR 2015-16
AECF REACT SSA	'000s SEK	400 000	-	-	30.0%	-	Sida Appraisal for REACT SSA +AECF Interview
IAP1	'000s SEK	50 990	25 500	25 490	50.0%	100.0%	2011-004499 Annex 4, Fees and cost schedule
IAP2	m EUR	7.40	4.12	3.28	44.3%	79.6%	IAP2-1 st Progress Report
GIF	m USD	178.00	-	-	24.1%	-	Progress Report 2016
MAVC	m GBP	24.86	11.67	7.17	28.8%	61.4%	MAVC-EMU Final Evaluation Report
Amplify Change	m EUR	94.42	81.33	12.59	13.3%	15.4%	AC AR 2016, Section A: Technical
Sustainability and Resilience	'000s SEK	57 000	54 000	2811	4.9%	5.2%	Activity Report 2017

Source: Evaluation of Sida's Global Challenge Funds, 2018:1 <https://cdn.sida.se/publications/files/sida62181en-evaluation-of-sidas-global-challenge-funds.pdf>