WATER AND ENERGY FOR FOOD

January 2020-December 2020

WATER and ENERGY for FOOD

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EXECUTIVE SUMMARY

Water and Energy for Food's (WE4F's) mission is to expand the sustainable scale of innovations and strategies that impact the sectors of food and water, food and energy, or all three sectors at the water-energy-food (WEF) nexus to produce more and increase the sustainability of agri-food value chains and address environmental and climate resilience in developing countries and emerging markets with a particular focus on the poor and women.

WE4F also attaches high importance to innovators and the partner countries that need to strive for a positive impact on the environment, climate and biodiversity (not only applying a do no harm approach), a holistic view on the management of natural resources and ecosystems, and the sustainable withdrawal and supply of water.

WE4F aims to:

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

WE4F believes that by supporting water-energy-food innovations and strategies, the program will be able to help these innovations reach sustainable, wide-scale adoption with smallholder farmers and other end-users in the agri-food value chain to improve agricultural productivity, increase food security, increase incomes, create jobs, and increase resilience to climate change and other economic shocks and stressors. These innovations can come from both for-profit and non-profit organizations, as well as organizations in academia with a for-profit arm that are working in the nexus of water-energy-food and that want to promote market-based and entrepreneurial solutions.

WE4F gives priority to innovations from and for developing economies, those with a focus on the base of the pyramid, and those that specifically target women and youth to increase both access and financial viability of these innovations.

WE4F is based on two predecessor programs: Securing Water for Food (SWFF) and Powering Agriculture: An Energy Grand Challenge for Development (PAEGC). Based on the two predecessor programs' lessons learned on the need for local impact and sustainability, this $65 million program focuses regionally on East and West Africa (E/W Africa), Southern and Central Africa (S/C Africa), the Middle East and North Africa (MENA), and South and Southeast Asia (S/SE Asia), and operates through five Regional Innovation Hubs (RIHs). These RIHs provide locally contextual grants, business model support and technical capacity building, facilitate private sector investment, create public-private partnerships, and policy advocacy and enabling environment support to both innovations and partners. Important stakeholders at the water-food-energy nexus include: local, regional, national, and international policy-makers; investors and financiers; non-governmental organizations; research institutions; and smallholder farmers.

This report outlines activities that were designed, managed and delivered between January and December 2020. The report documents our major activities and achievements, challenges we faced and the solutions we developed to address those challenges, in addition to providing details about the innovators we serve.

The key results of Year 1 were the launch of the Regional Innovation Hubs; the awarding of the Asia EDGE Ag-Energy Prize and its associated technical assistance and capacity-building; the launch of the Solar Powered Irrigation Systems mobile app; and the East Africa Regional Innovation Hub's signing of two public-private partnerships. WE4F's major challenges were COVID-19 affecting the start-up of the RIHs and the general implementation of program activities.

The final section of the report covers highlights of the major forthcoming activities that are planned for the remainder of the year (January to December 2021).

01 INTRODUCTION TO THE W-E-F NEXUS

CHALLENGES & OPPORTUNITIES

Water, energy, and food are essential for ending hunger, human well-being, poverty reduction, and sustainable development. Global projections indicate that the demand for freshwater, energy, and food will increase significantly over the coming decades as a result of the pressures from population growth and mobility, economic development, international trade, urbanization, diversifying diets, cultural and technological changes, and climate change. This situation is expected to be exacerbated, as 60 percent more food will need to be produced to feed the world's population in 2050.

ACHIEVING FOOD SECURITY

Global projections show that the world is not on track to achieve SDG2: Zero Hunger and Malnutrition by 2030[1]. The negative effects of the pandemic pushed even more people into poverty. The Welthungerhilfe Global Hunger Index revealed that the number of people affected by hunger has risen to 690 million worldwide. This shows that food systems were unprepared to face an emergency like COVID-19. It also points out the need to rethink how the world produces and consumes food, and how the design of food value chains incorporates climate change resilience. As the adverse effects of climate change and widening gaps of inequality make it difficult to achieve the goal of ending hunger, more innovative approaches, investments, and policy actions are necessary to make a world without hunger possible.

To meet the commitment of lifting 500 million people out of food insecurity by 2030, G7 governments would need to increase their investments over the next ten years. Recent estimates confirm that such interventions do not have to be prohibitively expensive and promise high returns in terms of lives saved, people's well-being and productivity[2]. Continuing with business-as-usual and delaying action could push 840 to 909 million people into food insecurity by 2030, which will require even greater governmental investments[3].

The investments targeting food insecurity are expected to be costly and difficult to implement, but applying a comprehensive approach can also benefit other parts of the 2030 Agenda for Sustainable Development, (*e.g.*, by increasing incomes of food producers and limiting greenhouse gas emissions from agriculture). Expanding local food production in developing countries and emerging economies offers promising prospects for rural well-being, economic transformation, and sustainable economic growth and development. Progress toward transforming local food production lies in acceleration through innovations, investments, and market development. Investing opportunities (*e.g.*, the expansion of small-scale irrigation) are especially promising and can benefit smallholders[4].

GROWING POPULATIONS AND URBANIZATION

In the past 200 years, the world's population has grown sevenfold, reaching 7.8 billion today. It is expected to reach 8.5 billion by 2030[5]. By then, it is estimated that well over 60 percent of the world's population will live in an urban context, which is likely to exert new pressures on food systems.

Today, as a result of rapid urbanization, there are currently more than 800 million people living in poverty in urban slums[6]; this calls for new

1. Braun et al. October 12, 2020. Ending Hunger by 2030 – policy actions and costs. /2. Ibid. /3. Ibid. /4. Center for Development Research (ZEF). October 2020. From Potentials to Reality: Transforming Africa's Food Production: Investment and policy priorities for sufficient, nutritious and sustainable food supplies. /5. https://www.un.org/en/development/desa/publications/world-population-prospects-2015-revision.html. /6. https://unstats.un.org/sdgs/report/2019/goal-11/

urban agriculture and food system solutions. Urban agriculture currently feeds more than 800 million people worldwide, addressing peoples' needs and making valuable contributions to the food production value chain. Despite the trends in urbanization, poverty in rural areas remains widespread. In 2010, 34 percent of people residing in rural areas worldwide were living in poverty[7]. This calls for continuing, focused action to ensure sustainable rural livelihoods and food security.

CLIMATE CHANGE AND RESOURCE SCARCITY

Climate change is severely affecting agricultural productivity, biodiversity, and the availability of natural resources through changing rainfall patterns, drought, flooding, and the geographical redistribution of diseases. The climatic changes also have led to a rise in sea levels due to thermal expansion and the melting of freshwater glaciers and ice sheets. This particularly affects Small Island Developing States, (SIDS), impacting their agriculture, aquaculture, and ocean-related food production through declining water quality and soil salinization.

In addition to these trends and changes, demographic pressure, the rate of economic development, and climate change are putting pressure on water resources worldwide. In 2018, more than 2 billion people lived in countries experiencing high water stress[8]. Growing water stress indicates substantial use of water resources, which causes greater impacts on resource sustainability, and increases the potential for conflicts over contested water resources. Cities, industries, and other users increasingly claim water, energy, and land resources, while also facing environmental degradation and, in some cases, resource scarcity.

Climate change, human consumption, pollution, and expansion into formerly wild areas disturb and threaten entire ecosystems and their biodiversity. This has caused an unprecedented rise in the extinction of species, with scientists estimating that 50 percent of all species may be lost within the next century[9]. Agriculture plays a role in the threat to biodiversity, especially the widespread and extensive use of pesticides and monocultures, which remove biodiversity from farms. Conservation efforts are necessary to preserve biodiversity and protect endangered species and their habitats.

AGRICULTURE'S WATER AND ENERGY USE

Agriculture accounts for 70 percent of total global freshwater withdrawals, making it the largest user[10]. Water is also used to produce or transport energy in many different forms. Food production and supply chains consume about 30 percent of all energy used globally[11]. Energy is required to produce, transport, and distribute food, as well as to extract, pump, lift, collect, transport, and treat water.

Agricultural sectors in low-income countries face significant barriers accessing renewable energy, which hinders integration of this technology into agricultural development. Likewise, renewable energy enterprises seeking to serve farmers face several barriers, such as limited access to debt financing, a remote client base, and lack of demand due to low or no awareness. This creates an unproductive cycle where suppliers and buyers are not connected and farmers and agribusinesses cannot leverage more cost-effective renewable energy technologies.

Global energy consumption is projected to increase up to 50 percent by 2050[12]. Total

7. European Commission (DG DEVCO). 2018. BRUSSELS POLICY BRIEFING N. 50 – Growing food in the cities: Successes and new opportunities. Brussels, Belgium: European Commission. /8. WWAP (UNESCO World Water Assessment Programme). 2019. The United Nations World Water Development Report 2019: Leaving No One Behind. Paris, UNESCO. /9. https://www.theguardian.com/environment/2017/feb/25/half-all-species-extinct-end-century-vatican-conference /10. http://www.fao.org/3/i7959e/i7959e.pdf /11. https://publications.jrc.ec.europa.eu/repository/bitstream/JRC96121/ldna27247enn.pdf /12. https://www.eia.gov/outlooks/ieo/pdf/ieo2020.pdf /13. http://www.fao.org/3/i7959e/i7959e.pdf.


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global water withdrawals for irrigation are projected to increase 10 percent by 2050[13]. As demand grows, there is escalating competition for resources between sectors such us water, energy, agriculture, fisheries, livestock, forestry, mining, transportation, and others. This competition will result in unpredictable impacts on the environment and the livelihoods of smallholder farmers, women, and youth working in the agricultural sector.

GENDER AND YOUTH

The above trends will also influence development in general. A largely unproductive agricultural sector with low prospects of increasing living standards will raise unemployment rates and the number of working poor – particularly among the youth. Thus, advancements made in agricultural sector productivity can create jobs and make a crucial contribution towards poverty reduction, food security, and sustainable rural and urban development.

It is particularly important to target women in the agricultural sector, as both producers and consumers, because they are the most disadvantaged in terms of access to land, financing, and other means of production. This is a great cause of concern as women constitute nearly half of the agricultural workforce and up to 70 percent in many parts of the world. If women had the same access to resources as their male counterparts, they could increase yields by 20 to 30 percent and, in the process, feed up to 150 million more people[14].

SDGS AND PRIVATE SECTOR ENGAGEMENT

The United Nations' Sustainable Development Goals (SDGs) also acknowledge these trends, among others, in SDG 2 (Zero Hunger), SDG 5 (Gender Equality), SDG 6 (Clean Water and Sanitation), SDG 7 (Affordable and Clean Energy), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Change), SDG 15 (Life on Land), and SDG 17 (Partnerships for the Goals). The UN SDGs also call for new solutions to existing development challenges.

In recent years, there has been a growing focus on engaging the private sector to contribute to a more environmentally, economically, and socially sustainable world, while simultaneously enhancing economic growth and contributing to job creation. The underlying rationale is that the private sector can use its core activities and brands to support development and be a catalyst of change by creating opportunities for people to lift themselves out of poverty. At the same time, social entrepreneurs using science and technology are striving to create innovative breakthroughs, and impact investors are looking for ground-breaking solutions to support.

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14. www.fao.org/3/i2050e/i2050e.pdf

02 HOLISTIC AND INTEGRATED SOLUTIONS FOR THE W-E-F NEXUS

HOLISTIC AND INTEGRATED SOLUTIONS FOR THE W-E-F NEXUS

To address these challenges, 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), Sweden through the Swedish International Development Cooperation Agency (Sida), and the U.S. Agency for International Development (USAID) launched the Water and Energy for Food (WE4F) Grand Challenge for Development.

WE4F holds a unique potential for strong multilateral cooperation toward holistic and global solutions. The program:

- With its stakeholders, mobilizes diverse approaches, methods, and perspectives to build a strong program that advocates holistic solutions for sustainable development.
- Combines water, energy, and food together, allowing the program to overcome sectoral silos that bear the risk of overlooking central issues and causing unintended negative outcomes.
- Follows a holistic and integrated approach, considering not only local economic development in the water-energy-food (WEF) nexus but also transformative concepts such as integrating gender equality monitoring effects on biodiversity, and supporting people at the base of the pyramid (BOP).
- Brings together technical and financial cooperation by working on economic development themes such as access to finance and local private sector development.

Announced at World Water Week 2018 and launched at the Social Capital Markets 2019 signature event in San Francisco, California, the $65 million (€53.5 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.

WE4F aims to:

Increase food production along the value chain through a more sustainable and efficient usage of water and energy.

Increase income for base of the pyramid women and men in both rural and urban areas.

Sustainably scale innovators' solutions to meet the challenges in the WE4F nexus.

Promote climate and environmental resilience and biodiversity through the sustainable, holistic management of natural resources and ecosystems.

The past investment made by WE4F Donor Partners into SWFF and PAEGC innovations in the water-food, energy-food, and water-energy-food nexus enabled the creation of promising prototypes and the scaling of innovations. SWFF and PAEGC utilized different tools, such as grants, access to world-class mentors, technical assistance (TA), and development of relationships with potential investors and clients, to increase innovators' business sustainability and develop their operations. In accordance with SDGs, the market opportunities scaled by the WE4F predecessors contributed to more sustainable food systems, increased food security in developing countries and emerging economies, promoted gender equality and base of the pyramid integration, minimized natural resource use, and targeted the environment and biodiversity protection.

The WE4F program works with some of the most promising innovations identified and nurtured during the legacy programs, helping them reach the next level of customer/end-user adoption and impact. With continued support, these innovators have the potential to achieve sustainable scale and bring about transformational change in the food sector, improving the lives of millions of people. The program also onboards new innovations within the (WEF) nexus through Calls for Innovations (CFIs), public-private partnerships (PPPs), and other relevant channels. Through these onboarding methods, innovators will receive tailored support and benefit from the previous programs' networks and knowledge transfer.

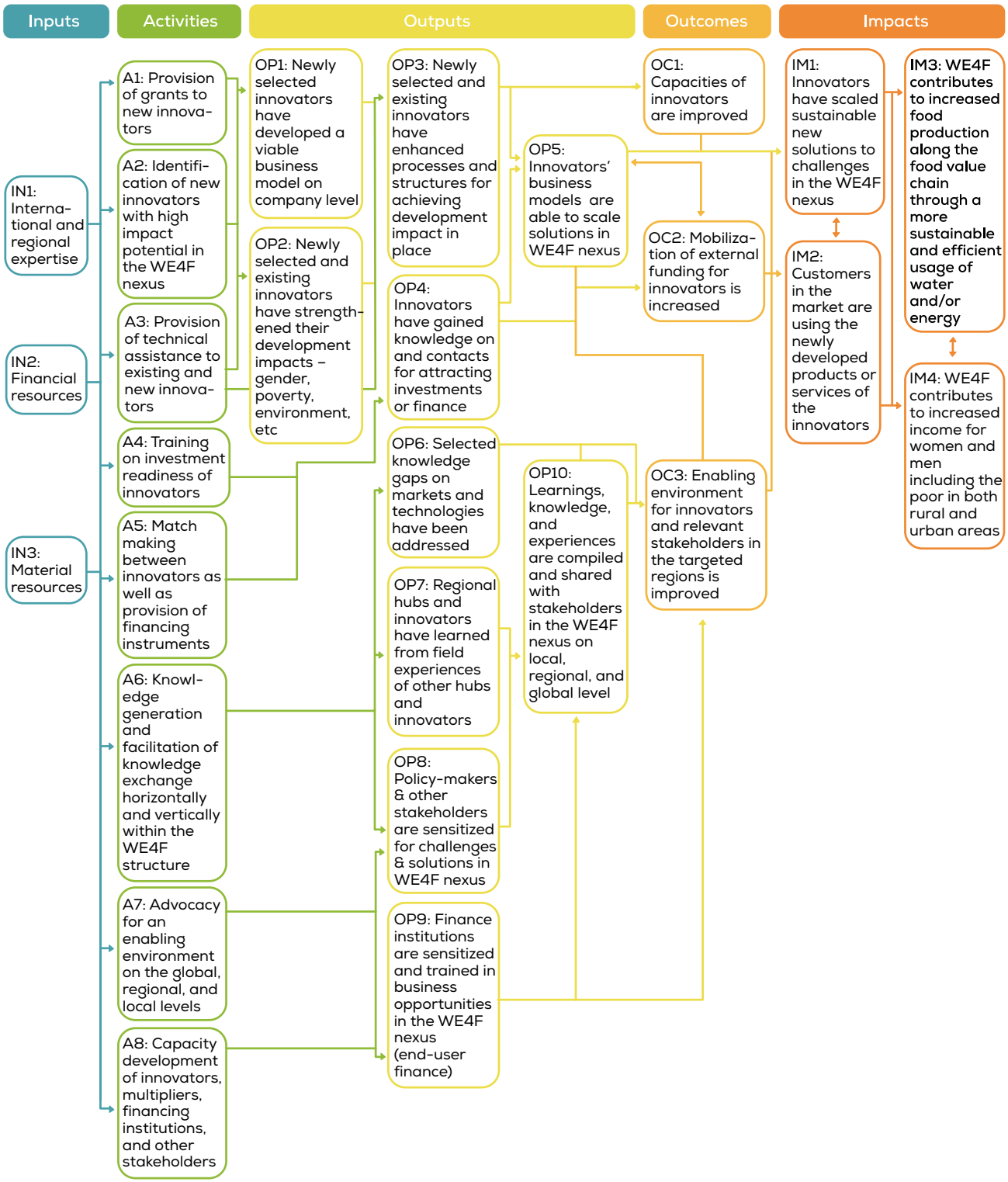
The program also prioritizes the need for innovators to go beyond the "do no harm" approach. Innovators are encouraged to take a holistic approach to natural resource management (NRM), ecosystems, and the sustainable supply and withdrawal of water.

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.

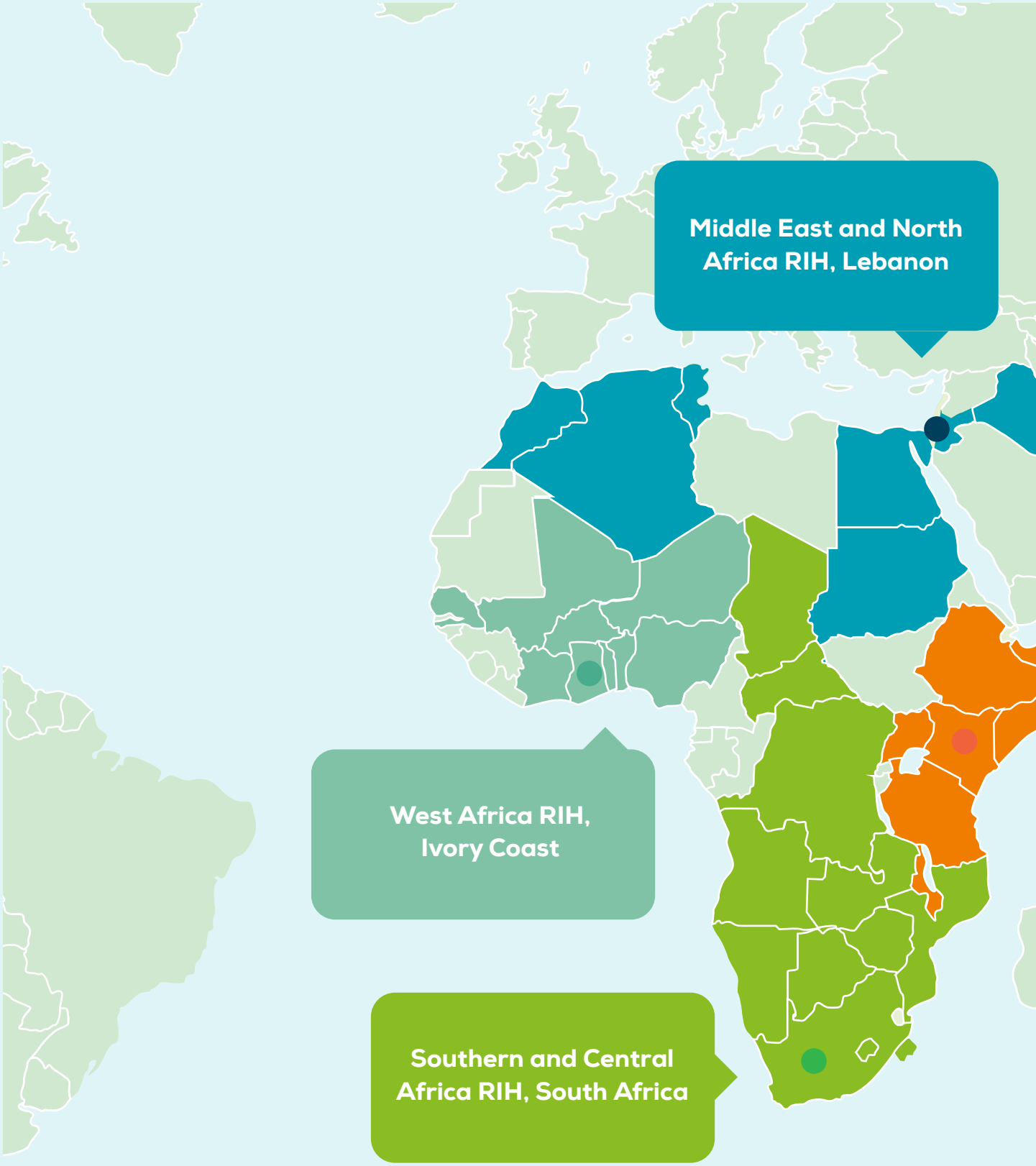
THEORY OF CHANGE

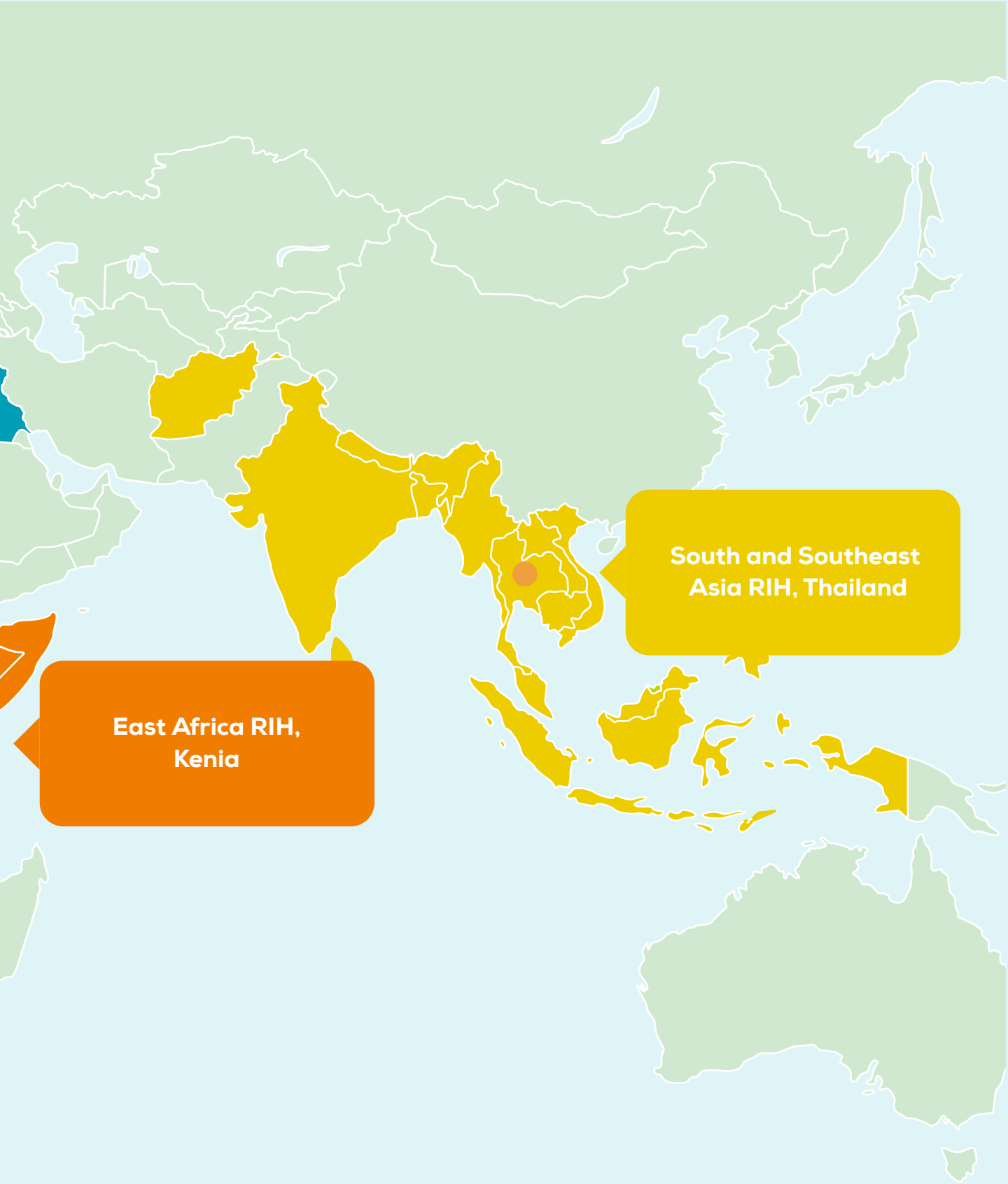
WE4F developed a comprehensive and transparent theory of change (ToC) to show the expected outcomes and impacts of the WE4F program (see figure below). The ToC serves as a guide for a range of activities, including how to target selected innovators, generating and disseminating knowledge, enabling environment advocacy, and innovator and WEF nexus stakeholder training. These interventions are expected to have direct effects (outputs), which lead to more short- to medium-term effects (outcomes) down the road.

For example, if innovators can mobilize additional external funds, WE4F expects this outcome will cause broader impacts in the long term, such as increased income for poor men and women in both rural and urban areas (IM4). More immediate impacts include sustainably scaled innovations in the WE4F nexus (IM1) and the market customer usage of newly developed products or services of the innovators (IM2). (See ToC chart below for a comprehensive overview).


Inputs
Activities
Outputs
Outcomes
Impacts
IN1: International and regional expertise
IN2: Financial resources
IN3: Material resources
A1: Provision of grants to new innovators
A2: Identification of new innovators with high impact potential in the WE4F nexus
A3: Provision of technical assistance to existing and new innovators
A4: Training on investment readiness of innovators
A5: Match making between innovators as well as provision of financing instruments
A6: Knowledge generation and facilitation of knowledge exchange horizontally and vertically within the WE4F structure
A7: Advocacy for an enabling environment on the global, regional, and local levels
A8: Capacity development of innovators, multipliers, financing institutions, and other stakeholders
OP1: Newly selected innovators have developed a viable business model on company level
OP2: Newly selected and existing innovators have strengthened their development impacts – gender, poverty, environment, etc
OP3: Newly selected and existing innovators have enhanced processes and structures for achieving development impact in place
OP4: Innovators have gained knowledge on and contacts for attracting investments or finance
OP5: Innovators' business models are able to scale solutions in WE4F nexus
OP6: Selected knowledge gaps on markets and technologies have been addressed
OP7: Regional hubs and innovators have learned from field experiences of other hubs and innovators
OP8: Policy-makers & other stakeholders are sensitized for challenges & solutions in WE4F nexus
OP9: Finance institutions are sensitized and trained in business opportunities in the WE4F nexus (end-user finance)
OP10: Learnings, knowledge, and experiences are compiled and shared with stakeholders in the WE4F nexus on local, regional, and global level
OC1: Capacities of innovators are improved
OC2: Mobilization of external funding for innovators is increased
OC3: Enabling environment for innovators and relevant stakeholders in the targeted regions is improved
IM1: Innovators 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 innovators
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 both rural and urban areas

MAP OF COUNTRIES




South and Southeast Asia RIH, Thailand
East Africa RIH, Kenia

AREAS OF INTERVENTION

PRIVATE SECTOR ENGAGEMENT

INNOVATOR SUPPORT

The WE4F program works with both final and intermediate target groups. For the purposes of this program, the final target group is defined as smallholder farmers in the agricultural sector, base of the pyramid men and women, and youth. To reach this final target group, WE4F works with an intermediate innovator target group defined as:

- Innovators (from SWFF or PAEGC) with great potential for sustainable scaling that previously received support and proved successful in the introduction phase
- For-profits, non-profits, and organizations in academia with a for-profit arm working in the WEF nexus that apply through CFIs to become innovators
- Other actors identified by RIHs that fit WE4F criteria and are crucial for impact scaling – for companies working in the food processing sector

The program prioritizes innovators from developing countries and emerging economies, female innovators, and young innovators. Innovations can work in water-food, energy-food, or at the nexus of water-energy-food; innovations must focus on the final target group.

Calls for Innovations (CFIs)
In addition to supporting innovators from previous programs that show high potential for sustainable scaling, the program identifies new innovators through advertised CFIs launched at the RIH level. The Secretariat works with RIHs to develop the selection criteria and adapt them to specific regional contexts. Regional multidisciplinary advisory bodies, called Regional Advisory Bodies (RAB), support the selection process to increase legitimacy and suitability of the calls. Through the regional CFIs, selected innovators can access grant funding and technical assistance and investment support (see below). Grant sizes depend on the hub, with a general range of $10,000 (€8,200) to $500,000 (€410,000). The program's milestone-based funding is conditional; to receive funding, innovators must meet agreed-upon milestones every year. The milestones and targets are designed to help innovators directly contribute to program objectives and are customized to fit each innovator's context. The program provides these grants to enterprises because it expects awardees to use the grants to build the systems and processes needed to scale sustainably, or as stopgap funding to help them raise external private investments to fund their growth.

Technical Assistance (TA) and Investment Facilitation (IF)
SWFF and PAEGC learned that access to private capital is an important support mechanism for innovators, along with business acceleration support. In accordance with those lessons learned, WE4F ensures that innovators' TA is complemented by RIH investment facilitation (IF) services. Hubs provide business support services to innovators after they complete an Acceleration Work Plan (AWP; USAID) or Action Plan (AP; GIZ) to determine areas where support is needed to scale the innovation.

For USAID RIHs, the AWP details investment-related hub assistance, along with key supporting interventions on cross-cutting issues, especially BOP impact, gender integration, and environmental sustainability. TA and IF enhance business operations, helping innovators reach sustainable scale. Both support services can be provided with or without grant funding. Provided business acceleration support services include investment readiness, business development, product development and refinement, gender integration, market research and analysis, sales and marketing, public relations and communications, legal advice, and organizational capacity development.

PUBLIC-PRIVATE PARTNERSHIPS (PPP)

WE4F provides matched funding to private sector companies through public-private partnerships (PPPs). WE4F's PPPs aim to leverage and mobilize private sector capital for development purposes. The program draws on the strengths and expertise of the private sector to build market-led solutions that advance development objectives. A private sector partner must provide 50 percent of the funding. All partners participate in the co-designing, co-funding and co-managing of PPP activities. In the WA and EA RIHs, GIZ uses the PPP model through Integrated Development Partnerships (iDPP) to support local processing companies introducing renewable energy, water-efficient innovations, and energy-efficient innovations to their businesses. All partners contribute some combination of expertise, in-kind input, and money. USAID's MENA, S/SEA, and S/CA RIHs also are exploring the use of PPPs for future activities beyond the CFI.

ADVOCACY AND ENABLING ENVIRONMENT ACTIVITIES

WE4F's promotion of enabling environments is the program's response to important findings and lessons from WE4F's predecessor programs. These lessons learned showed how political, regulatory, and financial barriers can either facilitate or hinder the growth of agriculture-focused innovations. A PAEGC policy and regulation paper[15] points out that promoting ease of business operations, stimulating market growth, recognizing and rewarding quality standards, and strengthening private-sector/government partnerships boost innovators' chances to effectively deliver WEF nexus solutions for greater economic and social impact. Therefore, WE4F intends to work with national and regional governmental institutions, industry associations, and civil society groups to shape political, legal, social, environmental, and economic conditions that promote innovators' business development and contribute to the uptake of WEF nexus innovations.

To aid enabling environments, WE4F works to create and disseminate knowledge that incorporates regional context. One of the ways the program plans on achieving this is by undertaking relevant studies and creating knowledge products, such as investment landscape studies. **WE4F's conducted studies and developed knowledge products play a crucial role for understanding local contexts and challenges, improving WEF nexus innovations, and supporting local governments and agencies as they address barriers faced by innovators.** Additionally, WE4F advocates for enabling environments on national, regional, and global levels by feeding lessons learned into the global policy debate and participating in regional and global activities. **To advocate for improved enabling environments and disseminate WE4F knowledge products, the program participates in conferences, hosts webinars, produces stories, and releases a monthly newsletter.**

Regional Innovation Hubs (RIHs) are the key focal point for improving enabling environments at both national and regional levels. The RIHs engage with sectoral networks to generate knowledge and facilitate advocacy work that encourages changes in the sectoral forums. Through regional engagement, RIHs identify the challenges faced by different ecosystem actors and devise plans to reduce barriers that innovators encounter while scaling their innovations. The RIHs also adopt a bottom-up approach to understand different country contexts and help them work more effectively with local government, donors, and private sector organizations.

CAPACITY DEVELOPMENT

WE4F has developed and implemented a global capacity development (GCD) strategy that

15. Navigating policy and regulation in the clean energy-agriculture nexus: a guide for companies to engage policymakers.

supports learning and knowledge among nexus key actors about the potential of climate-friendly, and energy- and/or water-efficient innovations for more productive and environmentally sustainable food production. While the strategy refers to capacity development measures provided in any WE4F RIH regions, most activities will occur in East Africa and West Africa. WE4F's GCD strategy builds on lessons learned from the predecessor programs PAEGC and SWFF. Ongoing capacity building will take into consideration the lessons learned, such as making a special effort to improve gender integration and developing a systematic approach to evaluate the impact of trainings. The GCD strategy has three 3 main areas of intervention:

- **Informing end-users and multipliers** (40 percent of them women) from sector or value chain organizations, technology institutes and technical schools, consulting services, and fundinginstitutions about the potential of climate-friendly, energy- and/or water-efficient innovations and develop their skills and competencies in relevant selected WEF nexus topics.
- **Enhancing the organizational and technical capacities of educational institutions** (training centers in particular) to ensure the sustainability of the program's tools and results.
- **Supporting the creation of an enabling environment for** the dissemination of climate-friendly, energy- and water-efficient innovations by strengthening national, regional, and sectoral decision makers' capacities to inform, sensitize, and advocate on WEF-nexus-related.

EXTERNAL STAKEHOLDER SUPPORT

WE4F's GCD strategy focuses on the human capacity development of different actors and stakeholders working on WEF nexus topics at the national, interregional, and global levels (*e.g.*, smallholder farmers, development practitioners, financiers, policy makers, academics, etc.) and capitalizing on their potential role as multipliers[16]. In addition, WE4F also will develop a network of actors interested in sustainable learning and change, so they can share experiences and lessons learned. The global program targets three groups: (1) trainers, multipliers, and advisors; (2) national and regional policymakers; and (3) financial sector and WE4F stakeholders.

The GIZ Secretariat Unit, East Africa RIH, and West Africa RIH also enhance the organizational capacities of educational institutions (in particular, training centers), enabling them to promote and provide training sessions on WE4F-supported innovations while innovators are involved in the WE4F and post-program.

PARTNERSHIP DEVELOPMENT

WE4F seeks a diverse set of partnerships to implement activities that fulfill its mission. The goal of this diversity is to leverage a broad range of expertise to achieve the program's development objectives, leading to transformational impact and systemic change. The WE4F Donor Partners believe partnerships with the private sector, NGOs, governmental institutions, research institutions, financial institutions, and other donors are necessary to amplify the goal of increasing food production through sustainable water and energy usage.

PARTNERSHIP CATEGORIES

Steering Committee Partners

The Steering Committee oversees the overall direction and strategy of the program, representing the highest decision-making level of the program. Steering Committee partners represent the interests of their respective agencies and the program and ensure activities are in line with WE4F's

16. Multipliers are individuals working in relevant organizations (sector and or value chain organizations, technical institutes and schools, advisory services, donor organizations, etc.) that disseminate gained information further within their networks; *i.e.,.* multiply the reach of the knowledge. /17. This applies only to RIHs funded by USAID, Sida, and MFA-NL.

objectives. These partners provide political and strategic guidance and contribute funds to the WE4F program. Steering Committee members discuss and make decisions related primarily to:

- Progress toward achieving WE4F objectives
- Overall strategy, including cross-cutting issues based on learnings from the regions and global or national policy developments
- Overseeing regional selection of new innovators, including approving selection criteria and proposed candidates

Investment Partners

WE4F investment partners facilitate investment opportunities for WE4F innovators, unlocking the power of private capital to drive inclusive growth at the national, regional, and global levels. The intention is to generate measurable, beneficial social or environmental impacts along with financial return. Investment partners are any enterprises or organizations that enable WE4F innovators to scale their innovations. Potential partners include the World Bank, KfW Bank, funds, impact investors, local and regional financial sector actors, and regional and global enterprises that can provide access to financing and insurance for innovators and their clients.

Ecosystem/Value Chain Support Partners

These partners combine strengths and core competencies to achieve common WE4F goals. Each arrangement will depend on the length and nature of the engagement. Ecosystem Partners also may contribute to general WE4F program outreach, serve as mentors, and function as funding or knowledge partners. Engagements can be short-term or long-term.

Made up of private sector organizations, NGOs, think tanks, universities, and science and research organizations, these partners are expected to support WE4F, especially innovators and processing companies, as they work toward their objectives and targets. They can partner with WE4F in multiple areas: research, farmer outreach, TA, distribution, procurement, knowledge contribution, and many others. To encourage ongoing and steadily expanding results, partnerships must foster and advance market-based or market-driven approaches to development. This includes but is not limited to "shared value" approaches, which promote sustainable development.

Policy Level Partners

Partners in this category support WE4F's enabling environment goals through national, regional, and global policy outreach. Depending on their mandates, these partners:

- Promote the incorporation of successful innovations and lessons learned into national and regional regulations, policies, strategies, and programs

- Generate knowledge and facilitate advocacy work by highlighting important issues that challenge innovators including the scaling of innovations and end-user' uptake of innovations

- Engage in advocacy activities to create enabling environments, with the hope of contributing to systemic change in the regions

Policy Level Partners can include specialized thematic departments or agencies of international bodies, regional groups, or national governments. They may be donor policy support programs or private organizations such as NGOs, think tanks, universities, science and research organizations, or multilateral organizations. Policy partners must be thought leaders who are willing to promote the need for policy interventions in the WEF nexus and help innovators scale their businesses and impact, especially on cross-cutting issues such as environmental, social, and governance principles (ESGs).

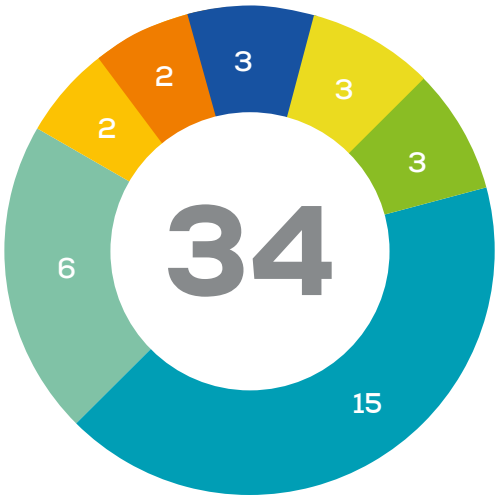
In 2020, WE4F engaged 34 organizations on a global, regional, or national level (see figure). The main focus was on establishing partnerships, not only with commercial enterprises and NGOs but also technical assistance providers and government institutions.

All organizations by type

Organization Type:

- Higher Education Institution / Research
- Other Development Actor
- Govermment
- Technical Assistance Firm
- NGO
- Commercial Enterprise
- Other

Record Count:



WE4F TARGETS

KEY PERFORMANCE INDICATORS

To ascertain whether the program is making progress toward its primary goal, the WE4F Donor Partners developed 10 KPIs that break down WE4F's mission into measurable subgoals. The program systematically collects data in the hub regions by using external surveyors to provide management and stakeholders with indications of the extent of the progress and achievement of the KPIs.

Collection by external surveyors ensures there are enough resources and expertise provided to support high-quality data collection for these key performance indicators. Each of the KPIs reflects components of the WE4F Theory of Change and Results Framework. The KPIs also align with the 44 WE4F Illustrative Indicators that correspond with the WE4F Theory of Change. The complete list of Illustrative Indicators can be found in Annex II.

WE4F KPIS AND TARGET VALUES

KPI 1: Share of supported innovators that successfully marketed their climate-friendly, energy and/ or water-efficient innovations with profit	8% of funded innovators of which at least 2 are led by women have successfully marketed their WE4F supported innovations with a 8% profit as compared to the baseline
KPI 2: Number of smallholder farmers and other end-users using energy- or water-efficient WE4F innovations in their activities	977,500 farmers and other end-users of which 30% are women and 100 are companies
KPI 3: Total mass of food produced as a result of WE4F innovations	+6,000,000 tons
KPI 4: Total mass of food processed as a result of WE4F innovations	+2,340,000 tons
KPI 5: Total amount of energy saved in the food value chain as a result of the use of WE4F innovations	-12.5% of energy input per kilogram (KG) of food produced
KPI 6: Total volume of water consumption reduction in the food value chain as a result of WE4F innovations	19,000,000,000 liters
KPI 7: Number of smallholder farmers and other end-users that experience an increase in income	Number of smallholder farmers and other end-users that experience an increase in income
KPI 8: Share of innovators that use tools, methods or processes to monitor the protection of water or biodiversity	80% of supported innovators
KPI 9: Investment in US Dollars that WE4F innovators have mobilized from external sources	+25,000,000 US Dollars
KPI 10: Number of strategies, guidelines, or projects of international, regional or local organizations adopting and disseminating lessons learned from WE4F publications, events, or presentations	6 strategies, guidelines, or projects

03 ABOUT WE4F

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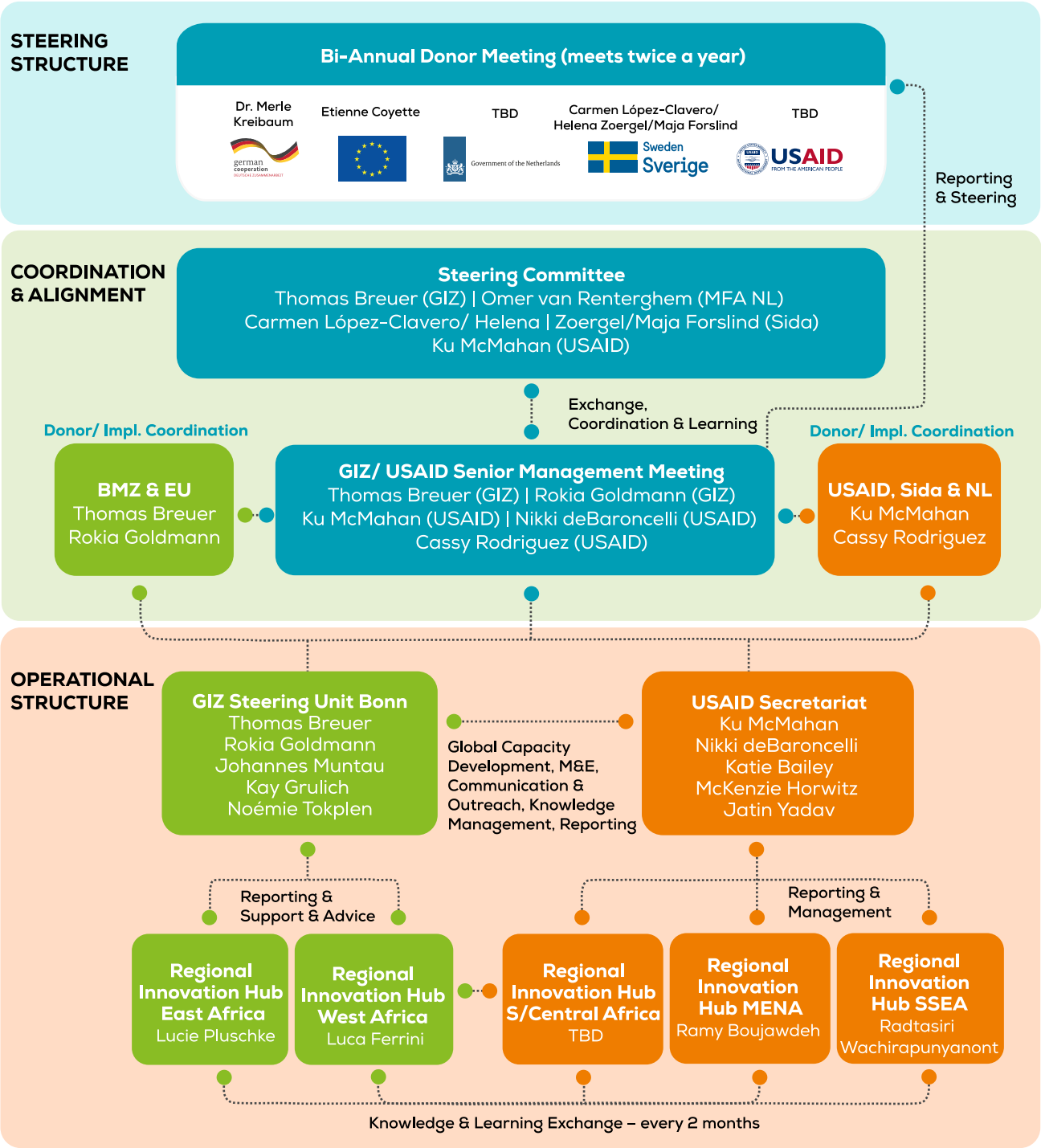
STRUCTURE


STEERING STRUCTURE
Bi-Annual Donor Meeting (meets twice a year)
Dr. Merle Kreibaum
Etienne Coyette
TBD
Carmen López-Clavero/ Helena Zoergel/Maja Forslind
TBD
Reporting & Steering
COORDINATION & ALIGNMENT
Steering Committee
Thomas Breuer (GIZ) | Omer van Renterghem (MFA NL)
Carmen López-Clavero/ Helena | Zoergel/Maja Forslind (Sida)
Ku McMahan (USAID)
Exchange, Coordination & Learning
Donor/ Impl. Coordination
BMZ & EU
Thomas Breuer
Rokia Goldmann
GIZ/ USAID Senior Management Meeting
Thomas Breuer (GIZ) | Rokia Goldmann (GIZ)
Ku McMahan (USAID) | Nikki deBaroncelli (USAID)
Cassy Rodriguez (USAID)
Donor/ Impl. Coordination
USAID, Sida & NL
Ku McMahan
Cassy Rodriguez
OPERATIONAL STRUCTURE
GIZ Steering Unit Bonn
Thomas Breuer
Rokia Goldmann
Johannes Muntau
Kay Grulich
Noémie Tokplen
Global Capacity Development, M&E, Communication & Outreach, Knowledge Management, Reporting
USAID Secretariat
Ku McMahan
Nikki deBaroncelli
Katie Bailey
McKenzie Horwitz
Jatin Yadav
Reporting & Support & Advice
Reporting & Management
Regional Innovation Hub East Africa
Lucie Pluschke
Regional Innovation Hub West Africa
Luca Ferrini
Regional Innovation Hub S/Central Africa
TBD
Regional Innovation Hub MENA
Ramy Boujawdeh
Regional Innovation Hub SSEA
Radtasiri Wachirapunyanont
Knowledge & Learning Exchange – every 2 months

WE4F's structure is made of a Donor Steering Committee (commonly referred to as the Steering Committee), a Secretariat Unit with two teams, and Regional Innovation Hubs (RIHs). To accommodate varied donor requirements, the Secretariat consists of two units: (1) GIZ on behalf of BMZ and the EU and (2) USAID on behalf of MFA-NL, Sida, and USAID. USAID provides direct support to the South and Southeast Asia (S/SEA) and the Middle East and North Africa (MENA) RIHs (and the future Southern and Central Africa (S/CA) RIH), and GIZ provides direct support to the West Africa (WA) and East Africa (EA) RIHs. This approach allows the Secretariat (and in turn the Steering Committee) to maintain close relationships within the regions and engage in an unfettered exchange of learning and guidance with the RIHs and innovators. It also allows both GIZ and USAID to tailor their staffing structures and internal processes to specific donor requirements, while maintaining alignment between the units during program implementation.

The Steering Committee represents the interests of the donors and ensures that activities are in line with WE4F's objectives in terms of subsectors or types of innovations, development targets, and geographical foci. The Secretariat serves as the implementing arm of the Steering Committee. It is the central actor for management of and reporting on the program. The Secretariat is also responsible for global scaling efforts.

Regional Innovation Hubs decentralize information and resources, allowing innovators to access region-specific TA, policy and advocacy development, and financial brokering. The enabling environment created by RIHs facilitates the development and strengthening of partnerships with local actors to create better linkages between organizations, customer bases, and markets. Each RIH contains a staff and networks that work with the respective Secretariat–level staff and other RIH specialists.

HISTORY AND VISION

HISTORY

WE4F continues the work of Securing Water for Food (SWFF) Grand Challenge and Powering Agriculture: An Energy Grand Challenge (PAEGC), two programs launched in 2013 to support and scale innovations working on water-agriculture and energy-agriculture challenges. During the former programs' six years of activity, SWFF and PAEGC collectively supported 80 innovators in developing and strengthening business models for their renewable energy and water for food innovations. The two programs reached more than 7 million smallholder farmers, their families, and other customers; helped farmers produce more than 6.8 million tons of food under improved practices; and reduced water consumption by more than 19 billion liters. Additionally, over $13.5 million in energy costs and more than 1.3 million trees were saved during the programs' implementation period.

While SWFF, PAEGC, and their innovators succeeded in reaching their objectives, the programs still had room to grow, as indicated by gaps identified in the final program evaluations. Unmet challenges included the need for (1) stronger focus on the private sector, (2) better facilitation of investments, (3) more support for end-user financing, (4) increased understanding of barriers innovators face in enabling environments, and (5) more thorough monitoring of impacts (see PAEGC and SWFF External Evaluation Recommendations in Annex 1).

As a result of the significant impact created by the two programs and the gaps identified, four SWFF and PAEGC partners-BMZ, MFA-NL, Sida, and USAID-collectively decided to merge the programs and create the second-generation Grand

Challenge, Water and Energy for Food (WE4F). The WE4F Donor Partners saw the new program as a way to continue capitalizing on the vast resources and learnings from the predecessor programs, while addressing the programmatic and innovation gaps that impeded further sustainable scaling and impact in the WEF nexus. Over the course of two years, the Donor Partners met virtually and in person to determine and agree upon the overall program structure. Together, they decided which aspects of the SWFF and PAEGC programs would be adopted and what elements needed to be created or adapted to address the barriers identified.

In addition, the partners procured external evaluators to conduct final evaluations of the predecessor programs, assessing overall performance and developing recommendations for the follow-on program. In October 2019, in Bonn, Germany, the Donor Partners confirmed their monetary commitment for the program and finalized the draft WE4F Project Activity Document (PAD), the central program document describing WE4F's mission and approach.

To address pitfalls, WE4F incorporated the RIH model used in PAEGC and the Technical Assistance Facility developed under SWFF. The RIH model allows program implementation in the target regions rather than from headquarters in Germany or the United States. Combining the two programmatic elements helped ensure that WE4F's decentralized approach would result in a clearer understanding of local contexts and markets, put a stronger focus on local ownership, and improve innovations' enabling environments from the ground up. Other essential SWFF and PAEGC elements incorporated into the design of WE4F include milestone-based funding; acceleration support services; sequenced and incremental acceleration support where innovators experience meaningful results; and practical and actionable gender recommendations are all integrated into scopes of work. Additionally, the program uses key insights from the Innovator Guidebook: Navigating Business Models for the Base of the Pyramid in Water and Energy for Food and The Untapped Market for Agricultural Innovations: A Practical Workbook to Help Innovators Reach Women Smallholder Farmers.

During the inception stage, WE4F conducted Investment Landscape Mapping Reports in Afghanistan, East Africa (EA), Middle East and North Africa (MENA), South and Southeast (S/SE) Asia, and West Africa (WA). Service providers hired to conduct separate regional assessments spent months in each region, interviewing dozens of stakeholders to determine the viability of various innovations. The Donor Partners used these documents to update the planned activities for each RIH.

The Donor Partners also wanted a better understanding of ongoing donor activities that might be connected to the WEF nexus in WE4F implementation countries. In collaboration with master's-level students, the Donor Partners created an online donor database and dashboard to provide an overview of regional water, energy, and agriculture programming, which could help them collectively determine how to engage with existing programming to reduce redundancies and increase efficiency.

PAEGC AND SWFF EXTERNAL EVALUATION RECOMMENDATIONS

To determine the extent to which SWFF and PAEGC contributed to innovator outcomes and achieved results, both programs procured external evaluators. Dexis Consulting Group conducted the **SWFF Final Evaluation** and Institute of Defense Analysis conducted the **PAEGC Final Evaluation.** The purpose was to measure the successes and failures of the programs. During the summer of 2020, both evaluators submitted final reports assessing the programs' performance using five criteria: relevance, effectiveness, efficiency, impact, and sustainability. Based on their assessments, they developed program recommendations for WE4F and other subsequent Grand Challenges. Upon submission

of the reports, the Secretariat Unit and Steering Committee reviewed the evaluators' recommendations to determine if and how they should be applied to the WE4F Program (see Annex I).

WE4F has already applied several evaluator recommendations. However, three key areas require continued dialogue: gender integration, novel and adaptable funding strategies, and the strengthening of lessons learned from program failure.

GENDER INTEGRATION

WE4F must improve gender integration at every level of the program. This can prove challenging, as evidenced by the SWFF external evaluation findings. The results show that SWFF heavily focused on gender and poverty, but women and BOP end-users did not benefit as much as possible due to pre-existing environmental barriers. A knowledge product produced by SWFF, The Untapped Market for Agricultural Innovations in Emerging Economies: A Practical Workbook to Help Innovators Reach Women Smallholder Farmers, **noted that women farmers do not have equal access to productive resources, training, credit, information, or markets.** The SWFF Failures, Pivots, and Lessons Learned Report **described how challenging it could be to accurately collect and report data due to farmers being wary of reporting exact incomes to an outsider like SWFF**, not remembering their exact information, or, in some cases, overreporting belonging to the extreme poor due to a perception that this qualified them for subsidies, discounts, or future benefits. In addition, evaluators noted that unintended negative consequences for women and the poor included additional burdens and increased conflict with family and community due to preconceived gender roles. WE4F recognizes that, if the program wants to change existing systems and power dynamics, negative outcomes may be unavoidable, but are ultimately worth the risk given the positive benefits for women. The program mitigates gender issues with the actions shown below.

- **Incorporating gender-specific criteria into the CFIs, giving preference to women-led organizations.**
- **Integrating gender into all scopes of work (SOWs) at every level, including the RIHs, innovators, TA staff, external evaluators, and external surveyors.**
- **Tailoring criteria to meet innovators where they are, by organizing goals into three levels – basic, intermediate, and advanced (premier) – to make them achievable.**
- **Enticing innovator engagement and buy-in by providing specific, targeted support (*e.g.*, gender integration workshops)**
- **Tracking progress on gender integration-specific indicators (*e.g.*, how many women farmers have been reached by the program)**
- **Understanding gender mainstreaming is an ongoing process and an integral part of continued dialogue among program stakeholders, as well as with partners in the field.**

NOVEL AND ADAPTABLE FUNDING STRATEGIES

To ensure innovator access to funding, the external evaluation recommends that WE4F consider novel, adaptable funding strategies in developing countries and emerging economies to find more effective ways to offer local low-interest financing that won't overburden innovators. Potential strategies include subsidization, crowdfunding, grants, donations, private and public investments, corporate matching gifts, noncash donations, and peer-to-peer loans. In addition, the evaluators suggested combining private and public funds to offset potential losses that may arise when attempting to make innovations affordable to all. WE4F is exploring several strategies:

- **Leveraging existing partnerships**. Partnerships with organizations such as the

AlphaMundi Foundation and the AlphaMundi Group can support technical assistance and positively affect measurement while contributing to private sector investment funds through direct debt and equity investments (as demonstrated during PAEGC).

- **Engaging financial institutions to generate interest in debt instruments and investment opportunities**. In recent conversations with development banks and family foundations, it became clear that WE4F innovators' investment capital requirements are well below the minimum deal sizes of most investors (*i.e.*, innovators need $250,000 to $750,000 in investment; investor deals are at a minimum $2 million). For this reason, WE4F is exploring other funding mechanisms, including charities focused on economic development (*e.g.*, Heifer International), crowdfunding platforms with low interest rates, microfinance organizations, and local banks, as well as how to engage them. Through field evaluations, the program also will examine innovator viability and level of interest in these funding strategies.

- **Developing financial guarantee instruments to mobilize private capital and expand innovator reach while mitigating risk for potential investors.** This includes determining the debt ratio organizations would have to take on, so it can be closely monitored.

STRENGTHEN LEARNING FROM FAILURE

The evaluator recommendations are also an indication that WE4F must strengthen efforts to learn from failure. This requires (1) documentation of failures in the annual reports (by both the Secretariat Unit and the RIHs) and a failures and pivots report at the end of the program; (2) quarterly meetings among hub managers to discuss successes, challenges, and lessons learned; (3) creation of lessons learned documents by the RIHs after the first CFIs to share what worked and what didn't; and (4) annual meetings for all RIH staff.

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04 PROGRAM LONG-TERM SUSTAINABILITY

To sustain outcomes and ensure that progress toward program goals and impact achieved continues after the program ends, WE4F integrated exit strategy elements into the overall program approach.

Since inception, WE4F has focused on long-term sustainability, strategic use of resources, and catalytic investments to accelerate and sustain progress. In addition to emphasizing the sustainable scale and impact of the innovations supported, WE4F prioritized procuring RIH consortia interested in running the hub beyond the four-year funding cycle. The RIH consortia is encouraged to leverage their network and tap into further funding partnerships. The RIHs have incorporated these strategies and plans into their technical proposals, yearly work plans, and activities to support the potential continuation of implementation beyond WE4F's period of performance.

Additionally, the program emphasizes collective participation, empowerment of local stakeholders, promotion of development ownership through localization, and individual and institutional capacity building. This is complemented by partnering with actors to develop effective, transparent, and accountable systems to better mobilize resources and by strengthening private sector engagement and innovative financing approaches. This multifaceted approach fosters more resilient and self-reliant innovators, investors, vendors, and local and national governments. The approach also prioritizes enduring partnerships, to ultimately drive economic growth in target regions so donor funding will be unnecessary once innovations have non-donor financing and support.

Overall, the WE4F exit strategy is built on three main foundations:

- **Local capacity.** Even as WE4F works with national and regional missions, governments, and other partners to achieve locally sustained results, it also supports countries as they mobilize public and private revenues, strengthen local capacities, and promote the journeys to self-reliance of governments, innovators, and stakeholders to help them achieve greater development outcomes. This also includes the provision of grants and technical assistance to innovators and a capacity development (CD) strategy that aims to develop individual and organizational capacities (partner skills, systems, and processes) of WEF nexus actors. The strategy defines CD topics and measures target groups, relevant partners, methods, and approximate cost.

- **Local and external knowledge.** This involves the generation and facilitation of knowledge exchanges, application of lessons learned, and awareness-raising and advocacy. Furthermore, this strategy institutionalizes knowledge and anchors WE4F activities within established institutions that will carry on the practice.

- **Partnership and local linkages.** As mentioned above, this includes the development and implementation of a partnership strategy that prioritizes catalytic partnerships - the kind that bring significant value add and amplify innovators' ability to reach sustainable impact. WE4F places a strong emphasis on broadening the program's developing country and emerging economy membership base and effectively linking these partners. In addition, WE4F fosters matchmaking between innovators, local banks and microfinance institutions, innovator networks, and investor networks.

To measure program success, WE4F uses KPIs and target values. The program outcomes represent the successful meeting of KPI target values. Additionally, true success for KPI target values and outcomes includes lasting, long-term impacts.

WE4F considers the continuation of activities and sustainability of outcomes (lasting changes) in the following ways:

- Innovators continue to grow, sell high quality and affordable products, and provide after-sales services. In the case of technological innovations, spare parts are available on the local market.
- Local experts are available to repair and maintain innovations.
- Local experts are available to train WEF actors on relevant topics.
- End-users (farmers, processing companies) appreciate and use the new innovative products, measures, or services.
- Functional financial resources or mechanisms are established to ensure innovators and end-users can access investment and finance.
- Methods and tools supporting the WEF-nexus approach are available and integrated into local, regional, sectoral, or cross-sectoral development strategies.


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05 SECRETARIAT UNIT RESPONSIBILITIES AND ACTIVITIES

The first year of WE4F focused on setting up the program, establishing processes, supporting the development of RIH operations, and implementing Secretariat-level activities. This section highlights the Secretariat Unit's responsibilities and activities that occurred during Year 1.

In addition to supporting RIH operations, the Secretariat Unit manages information exchange between the Steering Committee and the RIHs, oversees the budget to ensure timely dissemination of funds, coordinates monitoring activities across WE4F, and facilitates knowledge exchange between the USAID and GIZ Secretariat Units and the Regional Innovation Hubs to ensure the transfer of lessons learned.

COORDINATION AND DONOR RELATIONS MANAGEMENT

A major responsibility of the Secretariat Unit is managing the communication and coordination of the Steering Committee and disseminating their guidance to the RIHs.

In June 2020, the Secretariat Unit began meeting biweekly to develop appropriate management, finance, and control systems in line with the program's Terms of Reference (TOR). One of the first key activities was the creation of a joint work plan covering all key objectives and requirements listed in the Project Activity Document (PAD). To ensure consistency and cohesion throughout implementation, the Secretariat also defined WE4F's organizational structure and finalized communications procedures between internal stakeholders (Secretariat Units, Steering Committee, and RIH without the coordination and communication procedures instituted during 2020.

FINANCIAL MANAGEMENT

Efficient disbursement and tracking of donor funding are crucial for WE4F to function successfully. Each unit of the Secretariat is required to allocate funds in a timely manner and communicate allocation to the Steering Committee. Thus, in the first months of the program, the USAID Secretariat Senior Manager and the Head of the Secretariat from GIZ worked together to devise an annual financial reporting framework (with approval from the Steering Committee), which aligned the program budget for all the donors.

In addition to funds allocation and tracking, each unit is responsible for monitoring program spending at the Secretariat and RIH levels. However, the level of monitoring varies based on each Secretariat Unit's respective donors. For USAID, this includes the creation of finance and audit guidelines for the RIHs, monthly project-invoice review, and grant disbursement oversight. The agreements also require extensive collaboration between the USAID Secretariat Senior Manager and each RIH Grants and Finance Specialist to ensure that finance and compliance requirements are met.

Overall management, monitoring, and control of BMZ and EU funds is ensured by the GIZ Secretariat Unit. Funds allocated to the hubs are the full responsibility of the hub managers, who are GIZ staff, and manage the funds according to GIZ requirements and procedures.

During 2020, the USAID Secretariat Senior Manager developed financial management guidelines and templates for use by the MENA, S/CA, and S/SEA RIHs, including a Grants under Contract Manual, a Finance Manual, and an Innovator Help Guide. The creation of these documents allowed for the streamlining and simplification of reporting processes and enabled new RIH staff to quickly learn program financial management.

For the MENA RIH, these documents served as a particularly useful resource. While RIH Implementing Partner, Berytech, has experience working with USAID and other donor partners and well-versed in project implementation under grants and cooperative agreements, this was their first USAID contract. Thus, the Secretariat offered additional support throughout the start-up and the CFI process.

In addition to guidelines and templates, the USAID Secretariat provided sample documents from predecessor programs as needed and met with the MENA RIH on an ad hoc basis to ensure that rules and regulations were adhered to and contract requirements were met.

MONITORING AND EVALUATION (M&E)

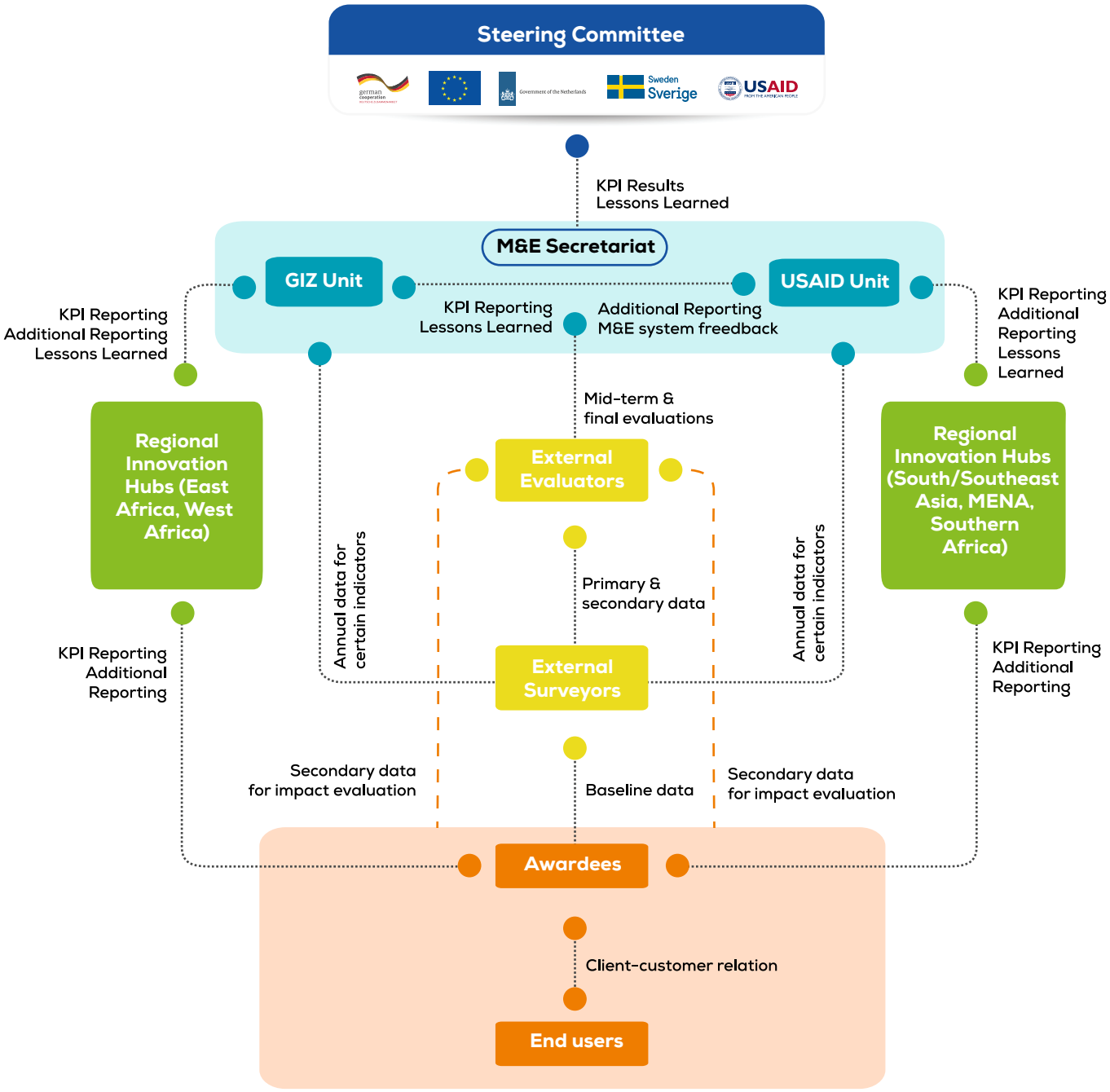
The GIZ and USAID teams of the Secretariat Unit coordinate closely to create and implement the overall WE4F Monitoring, Evaluation, and Learning Framework (MELF), build associated WE4F M&E systems and guidelines, and support annual reporting of WE4F results. Each Secretariat Unit has an M&E Specialist who is responsible for facilitating M&E activities at their respective RIHs, acting in an advisory capacity as the RIHs set up their own M&E guidelines and systems and provide oversight to ensure that the implementation of M&E at the RIHs is consistent with WE4F guidelines, standards, and needs for program-level reporting.

To ensure that WE4F can assess outcomes and impacts, it is essential that the USAID Unit M&E Specialist and GIZ Unit M&E Specialist establish consistent standards and methods for communicating WE4F results across all RIHs, despite each RIH's unique systems for measuring these results.

In July 2020, the Secretariat Unit M&E Specialists finalized the WE4F Program Monitoring and Evaluation Plan (PMEP), which serves as the key guiding document for M&E implementation across all RIHs and partners. In November 2020, the specialists finalized the WE4F Reporting Platform, which is the program's central data management and reporting system. The platform was successfully used in January 2021 to compile all results related to the program's indicators. Additionally, the Secretariat Units work together to facilitate data reporting for WE4F Annual Reports. The USAID unit also compiles results for semiannual reporting for Sida and MFA-NL.

As a lesson learned from the SWFF and PAEGC final evaluations, the WE4F external evaluation will begin before innovator implementation occurs, so baselines can be collected. In early 2021, each Secretariat Unit procured external evaluators to conduct Mid-Term and Final Impact Evaluations through joint consultations, but separate procurements. Throughout the evaluations, the Secretariat Units will closely collaborate and facilitate consistent program design and implementation. This will ensure that evaluation reports provide a coherent picture of WE4F's intended and unintended impacts on stakeholders and the WEF nexus.

In addition to the WE4F Secretariat staff, several other WE4F staff members and partners support the program's MELF implementation. WE4F and RIH staff members, WE4F innovators and PPP partners, External Surveyors and External Evaluators collaborate closely to collect M&E data, contribute to annual and semiannual reporting, and share lessons learned. This network of M&E partners is illustrated below:


Steering Committee
Sweden
Sverige
USAID
KPI Results
Lessons Learned
M&E Secretariat
GIZ Unit
USAID Unit
KPI Reporting
Additional Reporting
Lessons Learned
KPI Reporting
Lessons Learned
Additional Reporting
M&E system freedback
KPI Reporting
Additional
Reporting
Lessons
Learned
Mid-term &
final evaluations
Regional Innovation Hubs (East Africa, West Africa)
External Evaluators
Regional Innovation Hubs (South/Southeast Asia, MENA, Southern Africa)
Annual data for certain indicators
Primary &
secondary data
Annual data for certain indicators
KPI Reporting
Additional
Reporting
External Surveyors
KPI Reporting
Additional
Reporting
Secondary data
for impact evaluation
Baseline data
Secondary data
for impact evaluation
Awardees
Client-customer relation
End users

COMMUNICATIONS AND KNOWLEDGE MANAGEMENT (CKM)

Knowledge management and learning are key components of WE4F's Theory of Change, because they accelerate the scaling up of WE4F innovations. WE4F facilitates knowledge generation and information exchange within WEF linkages by connecting and collaborating with regional and sectoral networks to mobilize internal and external knowledge-sharing and lesson-learning opportunities.

Through WE4F knowledge products and dissemination activities, the program aims to reach certain target audiences (*e.g.*, donor agencies, governments, NGOs, enterprises, thematic experts, non-profits, and others). By engaging with communities of practice and target audiences, WE4F can improve internal operations, enhance enabling environments, and facilitate WEF stakeholders' learning.

To facilitate internal knowledge management and learning, WE4F Secretariat and RIH staff closely collaborate in the following ways:

- Create and facilitate opportunities to exchange lessons learned and share their regional challenges;
- Share lessons learned which have been identified at their respective hub and collaborate on the collation and dissemination; and
- Use M&E KPIs and internal milestones to track knowledge management progress and dissemination efforts.

CKM YEAR 1 ACTIVITIES

In Year 1 of the program, the CKM Team implemented the following activities:

Created global CKM strategies. The CKM Team developed global-level CKM strategies to help the program engage with target audiences (*e.g.*, innovators, WEF professionals) to increase their knowledge, inform them of WEF nexus challenges and opportunities, and improve enabling environments.

Developed WE4F social media and online presence and network. WE4F used SWFF's and PAEGC's existing networks to establish Facebook, Twitter, and YouTube accounts. Because the program focuses on working with entrepreneurs and enterprises, the CKM team created a LinkedIn page that engages and shares resources with innovators, sector experts, and other relevant actors.

Improved social media engagement and reach. At the beginning of June 2020, WE4F launched its social media channels. The table below shows the cumulative totals for WE4F social media channels. Every channel saw impressive growth and met its six-month targets. Over the course of 2020, the program gained 1,042 new followers across all platforms, surpassing the goal of 100 new followers. The program's three-part webinar series made it possible for the CKM team to surpass the planned one post per month for YouTube. This growth helped WE4F engage more stakeholders for the 2020 webinar series and reach more innovators during the MENA and S/SEA RIH CFIs.

Platform	Followers	# of Posts	Impressions	Clicks	Shares	Likes
Facebook	451	330	127,044	3073	185	771
LinkedIn	444	328	45,052	844	151	704
Twitter	3648	360	131,400	364	176	401
YouTube	137	32	11,100	N/A	55	57

Improved WE4F website engagement and reach. The WE4F website was launched as a platform to announce program news, tell stories related to the WE4F program, and provide WE4F-developed resources to stakeholders and target audiences. In 2020, The website received nearly 60,000 unique page views with more than 24,000 users. WE4F did not achieve its goal of 26,000 users during Year 1 and is pursuing changes to hit this milestone in the future. Meeting this milestone is crucial for RIH CFIs and maximizing outreach efforts.

Produced a monthly newsletter and maintained SWFF-level opens and engagement. WE4F's monthly newsletter also saw massive growth, gaining 1,716 new subscribers. Compared to Securing Water for Food's monthly newsletter, WE4F's open rate is up 1 percent (20 percent in 2019) and click rate is up 4 percent (9 percent in 2019). Achieving this metric has a direct impact on WE4F knowledge dissemination. It also shows that target audiences are interested in WE4F's knowledge and activities.

Wrote 25 stories about program activities. In 2020, WE4F published a total of 25 blog posts –the planned 26th blog post was delayed until January to avoid the holidays. In the coming years, WE4F plans to continue incorporating a storytelling approach, which not only helps share the program's impact in numbers and facts but also conveys the human element of WE4F activities.

Supported RIHs.
The global CKM Team coordinates social media content, provides editorial support for storytelling by the hubs, and organizes meetings where the hubs can share their current work and lessons learned. The Secretariat Unit also supported communication and outreach efforts for the MENA and S/SEA RIH CFIs, contributing to content development, analytics management, and network engagement. Content created by the Secretariat for the monthly newsletter and social media channels generated more than 15,000 impressions and 372 clicks to the CFI webpages. In Year 2, the CKM team will begin conducting internal learning sessions to improve the CKM work being done across all levels of the program.

Developed knowledge products. WE4F launched the Water and Energy for Food (WE4F) Portal on energypedia.info in August 2020. The portal aims to provide an overview of information related to clean-energy and water-efficient technologies that enhance agricultural production and value. Since January 2020, portal views have increased by 12 percent. At the end of 2020, the portal had more than 150,000 views. To engage a larger audience, the portal and its 18 key articles were translated into French. Over the course of 2020, the Secretariat Unit released multiple knowledge products, including the WE4F Global Factsheet, the Water-Energy-Food Nexus–Challenges & Opportunities Infographic, the Innovator Guidebook: Navigating Business Models for Base of the Pyramid in Water and Energy for Food, and the Investment Landscape Mapping Reports for Afghanistan, East Africa, the Middle East and North Africa, South and Southeast Asia, Southern and Central Africa, and West Africa.

Hosted knowledge dissemination events.
During 2020, the Secretariat Unit held three webinar series: WE4F Introductory Week, WE4F Hub Kickoffs, and Where Do We Go from Here? Lessons Learned for the Future of Water-Energy-Food Programming. The Secretariat Unit also aided in the organization, outreach, and hosting of Q&A webinars for the S/SEA RIH Call for Innovations, the MENA RIH Call for Innovations, and the MENA Call for Expressions of Interest from Service Providers. A complete list of webinar summaries, analytics, and links can be found in Annex III. In the wake of these events, WE4F team members within the Secretariat, as well as RIH staff, received a total of 456 newsletter subscriptions and 15 partnership requests.

CKM YEAR 1 MILESTONES AND ACHIEVEMENTS

Milestone	Year 1 Target	Results	Notes
Applicants	100 per hub	125+ per MENA and S/SEA RIHs	
Storytelling (Program)	26 stories	25 stories	26th publishing date pushed into 2021 due to holiday season
Storytelling (External Media)	10 stories	Not achieved	Innovators were not yet onboarded – no storytelling to be done
Storytelling (Investors)	4 stories	Not achieved	Innovators were not yet onboarded – no storytelling to be done
Newsletter	Maintain current analytics	Open rate increased by 1% Click rate increased by 4%	Also gained 1,716 new subscribers – 456 of them from the three webinar series
Social media growth	Gain 100 followers	Gained 1.042 new followers	Facebook and LinkedIn saw the largest growth – each gaining over 450 new followers
Facebook	2 posts per week	9.7 posts per week	
Twitter	3 posts per week	10.6 posts per week	
LinkedIn	2 posts per week	9.6 posts per week	
YouTube	1 post per month	5.3 posts per week	The three webinar series helped achieve this milestone
Website	26,000 users Non-CFI months: 2000 users CFI months: 3000 users	24,000	Fell 2,000 users short – will be working with hubs to improve outreach and engagement

EXTERNAL STAKEHOLDER GLOBAL CAPACITY DEVELOPMENT (GCD)

Conducted GCD needs assessment. All GCD measures emphasize WEF-nexus-related topics. In collaboration with the RIHs and other projects, the Secretariat is conducting a needs assessment on the ground to identify WEF-nexus-related topics. Tailored tools and multilingual training materials are being designed for virtual and in-person training workshops. Different modalities are used to reach out to beneficiaries, including training of trainers, advisory trainings, and ICT mediated CD approaches (*e.g.*, MOOCs, social media, portals, webinars, and e-learning).

Promoted the adaptation and use of solar-powered irrigation systems. WE4F aims to promote the sustainable adaptation and use of solar-powered irrigation systems and

sustainable water management practices. In 2020, the Secretariat Units further developed the web-based "Toolbox on Solar-Powered Irrigation Systems (SPIS)" created by PAEGC. The Toolbox was translated into Arabic language so it can be used by the MENA RIH. The Secretariat Unit also initiated the development of an online advisor training on SPIS. The online training series teaches the basic content and concepts of the SPIS Toolbox. In 2020, the GIZ Secretariat successfully conducted its first training of trainers (ToT) and SPIS online advisors training. Seven trainers from four countries were trained and certified as "virtual trainers;" they will now be able to hold online trainings on the SPIS Toolbox in the future in all RIH regions.

Created partnerships to expand SPIS toolbox reach. Beyond trainings, WE4F is creating partnerships to expand the reach of the SPIS toolbox and associated trainings. A grant agreement was signed between GIZ and the Mediterranean Agronomic Institute of Bari (CIHEAM-Bari), which is part of the International Center for Advanced Mediterranean Agronomic Studies (CIHEAM). The agreement will inform multipliers (*e.g.*, sector or value chain organizations, technology institutes and schools, extension services, funding institutions, and others.) about the potential of SPIS as climate-friendly, energy- or water-efficient innovations to increase food production and income along the food value chain. A SPIS Lab will be established, and ToTs, advisory trainings, and roundtables will be organized by CIHEAM Bari.

RISKS, CHALLENGES, AND LESSONS LEARNED

WE4F is proactively recognizing and addressing challenges and diligently working to use valuable lessons learned to improve program operations. Ultimately, this benefits innovators, the RIHs, and the program as a whole. While WE4F felt sufficiently prepared based on the lessons learned from its predecessors, unforeseen challenges arose that required flexibility. The sections below present risks identified early on, challenges faced during implementation (including the most significant challenge, COVID-19), and the lessons learned that WE4F used to pivot and adjust.

ASSESSMENT OF RISKS

In October 2019, WE4F conducted an assessment to identify, analyze, and plan for any potential risks that might arise during implementation. The risks were analyzed to distinguish whether they were internal (preventable by program intervention) or external (outside the influence of direct intervention). The analysis also determined the probability of the risks occurring, as well as the potential negative impact they could have on the program. Annex IV provides a more detailed overview of the groups of risks identified, as well as probability, impact, and steps taken to mitigate them from the program's inception. It is important to note that some of the risks that were identified changed over the course of Year 1. Specifically, the donors were able to rapidly mobilize and secure funding for all RIHs fairly early in the program, so the RIHs were able to fully execute Y1 activities. In addition, there was little corruption risk in Y1, because the RIHs had not yet identified companies and service providers by December 2020. However, the RIHs will assess and monitor this risk through their due diligence processes for both innovator and service provider selection. All RIHs will work to mitigate the risk of crowding out external financing in Y2 by openly requesting investor interest in both the innovators selection in the first calls for innovation and legacy innovators.

CHALLENGES AND LESSONS LEARNED

This section details the challenges faced by the Secretariat Unit during implementation of

Y1 activities. The section also details how those challenges were addressed and what the Secretariat learned from their experiences.

CHALLENGE: COVID-19

During 2020, COVID-19 greatly impacted many countries where WE4F operates. The resulting widespread hunger, malnutrition, and water insecurity, if left unchecked, posed serious challenges to security and prosperity. Current data shows:

- **Extreme poverty may increase by 20 percent or 148 million people; most of this increase will be in Sub-Saharan Africa and South Asia;**[18]
- **Emergency food assistance needs will increase by 25 percent;**[19] **and**
- **785 million people lacked access to safe water before COVID-19; the pandemic likely will increase those numbers.**

The agricultural sector has shown tremendous resilience during COVID-19. However, because the food and agricultural sectors serve as the economic base in developing countries and emerging economies, and a growing number of people will use those sectors to rebuild their lives post-pandemic, it is important to support these sectors. Additionally, as the pandemic continues, it has become more difficult for small and medium enterprises (SMEs) and mid- to late-stage innovations to survive long-term without external support.

Due to the lack of knowledge surrounding the impacts of COVID-19 on businesses in developing countries and emerging economies, WE4F needed to pivot to address any potential negative consequences. The global pandemic could affect program activities by resulting in the closure of companies WE4F aims to work with. In addition, the virus could make it impossible to implement activities and, at the same time, create an increased need for program-related support.

Pivot

To combat the effects of COVID-19, the Steering Committee and Secretariat Unit took a multi-lens view to assess COVID-19's impact on innovators, investors, farmers, and other key ecosystem actors. The program repurposed itself, adding features and activities that could specifically tackle the short- and long-term risks of COVID-19; including integrating COVID-19 into RIH proposals and work plans, organizing virtual events, expediting CFIs so financial and nonfinancial help could quickly reach innovators, working on a guarantee mechanism for future use by eligible innovators, sharing information such as impact-investing trends with innovators, and forging partnerships with different external partners.

Additionally, the team conducting the S/CA Investment Landscape Mapping Report evolved its approach to tackle COVID-19-related challenges. The team incorporated questions related to COVID-19's impact into their interviews with innovators, investors, and service providers. The report highlighted that investors' increased cautiousness in deploying capital due to uncertainties and the inability to conduct due diligence as a result of travel restrictions. With the report, WE4F was able to include COVID-19 considerations in the S/CA RIH Request for Proposal (RFP).

COVID-19 Lessons Learned

The following lessons learned from the Secretariat Unit's experiences with COVID-19 will continue to inform and influence program operations in the coming years. Specifically, the lessons on communication, virtual events, and direct outreach will be valuable as the program participates in virtual conferences, continues to conduct online gatherings, and launches the S/CA RIH.

18. IFPRI /19. FEWSNET

Communication is key. The co-creation process between the Donor Partners and RIH teams allowed for a rapid exchange of ideas. Donor Partners and the RIH teams were also able to directly convey their views and lessons learned relating to COVID-19, making their approach to tackling the crisis more adept because they were united by a common vision.

Understand the crisis. It is important to survey and assess the crises' impact on a program's beneficiary population as it is happening. This allows internal resources to be repurposed, so the target beneficiary voice is included in the crisis response.

Virtual events are complicated. Virtual events take significantly more time and technical resources than bringing all stakeholders together at a physical location. External factors that need to be considered include organizer and presenter technical difficulties, attendee technological issues, and platform malfunctions. Consider setting up back channels for behind-the-scenes communication, developing a support document, and hosting multiple practice sessions.

Increase direct outreach. When global in-person events are canceled, it is important to keep the momentum going by engaging with potential partners on a one-on-one basis or through virtual events, which can be attended in real time or recorded and sent out to attendees. Digital communication and events can increase outreach and engage audiences that may not be able to attend if the event is held in person.

CHALLENGE: UNDERSTANDING LOCAL CONTEXTS FROM A GLOBAL PERSPECTIVE

As the program planned for its implementation, it was noted during the SWFF external evaluation, that WE4F needed to do a better job of recognizing the different landscapes in which it operates and adjusting activities accordingly. WE4F also noted that, due to the program's interests in investment facilitation and matchmaking, the program needed to understand local business ecosystems and what was lacking in them. The investment landscape mapping reports highlighted enablers and barriers that keep WEF nexus innovations from scaling in their respective regions. Armed with this information, the RIHs and WE4F can advocate for improving enabling environments and determine the activities/resources needed in each country. For instance, barriers like a lack of due diligence capabilities can be addressed by the RIH through the Brokering Unit. Meanwhile, enablers can be contacted and targeted for partnerships to improve local policy.

Investment Landscape Lessons Learned

The results from these reports were included in and will continue to play a role in the program's work and activity planning. WE4F learned the following major takeaways.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In East Africa, various enterprises were ready for expansion, but it was difficult to achieve the desired scale without active intervention. This

was due to challenges related to small investment amounts, lack of local bank participation, and early-stage business model structures.

In West Africa, there was a high concentration of activity in the irrigation sector due to the especially dry climate and a demand for enterprises to aid in year-round productive land use.

In the MENA region, equity and debt investors did not cater to start-ups or early-stage enterprises; most investors focused on mature or growth-stage companies due to lower risks. However, younger enterprises tended to have a higher number of inclusive workforces with more women and youth in leadership positions.


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In Southern and Central Africa, the region showed modest GDP growth and deal activity, but structural challenges continue to pose barriers to regional food security and the COVID-19 pandemic dampening the region's economic outlook.

In South and Southeast Asia, most investors preferred to have a local presence in the regions they seek to invest in and multiple funding vehicles differentiated by geography or type of capital.

CHALLENGE: PIVOTING ASIA EDGE AG-ENERGY PRIZE TO A DIGITAL FORMAT

In the fall of 2019, the WE4F Asia EDGE Ag-Energy Prize was launched to recognize and reward outstanding business plans from Southeast Asian youth and mid-market innovators operating at the nexus of renewable energy and agriculture. The prize provided 15 enterprises with capacity building support to overcome business growth challenges in a post-COVID-19 context. Of these 15 prize finalists, five organizations were awarded cash prizes to further help the enterprises grow and scale their innovations over the coming years.

The application process was launched just before the holidays, but the team realized it was not an ideal time to launch, so prize application intake was extended. Shifting the application due date caused additional challenges, because activities were set to take place in March 2020. The program had planned to bring finalists together for a three day, in-person, co-creation workshop Bangkok, Thailand. Due to COVID-19, the program was forced to shift to a virtual format, which took place over five days to ensure that the group could meet the original goals of fostering capacity building and strengthening the innovator community.

Changing the format from an in-person co-creation workshop to a virtual one posed the greatest challenge to the prize. To address this, the team integrated the finalists' needs by sending them a survey and conducting interviews. Based on finalists' responses, the team redesigned the workshop format and adjusted session times.

Pivot
To engage potential prize applicants and increase outreach, USAID Catalyst, the team running the prize competition, purchased social media ads and conducted one-on-one outreach. Due to this pivot in communications strategy, there were 79 applications from 22 countries, surpassing the 60-applicant target. The pivot also:
Saved Funding. Even with the additional preparation time, virtual engagements are significantly more cost-effective, because large percentages of budgets often are dedicated to travel and venue costs that are not incurred with virtual meetings.. In fact, WE4F was able to leverage leftover funds to provide follow-on marketing technical assistance to two non-winning, prize finalists.

Encouraged Participation. Virtual workshops are especially useful for business owners, because it accommodates their busy schedules and helps them stay on top of day-to-day business operations.

Built Innovator Networks. While face-to- face interactions are invaluable for forming relationships, Catalyst's co-creation workshop demonstrated that professional relationships also canbe formed in a virtual setting. For instance, two prize winners indicated that they are exploring a joint venture opportunity together in Myanmar.

Asia Edge Ag-Energy Prize Lessons Learned
Lessons learned from the prize competition will be used by all RIHs to inform CFI application processes and pivot as needed. These lessons are also relevant for the Secretariats as they plan conference sessions and internal program events. The lessons learned are:

Support attendee engagement. To ensure each attendee was fully prepared to engage in the virtual co-creation workshop, the organizers created a digital booklet that included a prize overview and timeline, COVID-19 adjustments, ICT logistics and instructions, finalist summaries, and bios of the judges, moderators, and presenters. Also, it is advisable to shift toward a virtual format that consists of more days but fewer hours per day to accommodate business owners' busy schedules and help them stay on top of their day-to-day operations.

Use of innovative, creative ICT solutions. The organizers selected two ICT platforms: virtual-event platform, BlueJeans, and whiteboard app, Miro, to enhance collaboration and documentation of key takeaways. Both platforms allowed participants to break out into smaller groups efficiently. Each breakout room had a moderator and a notetaker. Each session included specific prompts that helped innovators focus on key topics related to their enterprises. Note that some attendees had internet connectivity issues and Miro requires a strong connection for use.

Develop relevant workshop content. The co-creation workshop structure shifted significantly due to the pandemic. Each of the five sessions included discussions about the impact of COVID-19 and its effect on different aspects of the program, such as ESGs, agriculture value chains, and investment landscapes.

Give participants what they want. One of the most important lessons learned was the importance of daily attendee surveys. Daily surveys were sent to finalists to collect feedback on the effectiveness of each day's session. This allowed USAID Catalyst to pivot and apply ad hoc improvements to the next day's session.

Organize a diverse judging panel. The diversity of the judging panel supported the selection of innovators that are well positioned to create both economic and social impacts. The panel included not only experts from technical (WEF nexus) and business (markets and investment) backgrounds but also those with expertise in cross-cutting issues such as BOP impact, gender integration, and environmental sustainability.

Create a community. Conducting a co-creation workshop at a pre-judging stage, with a larger

pool of finalists rather than with a smaller pool of winners at the post-judging stage, increased peer-to-peer knowledge exchanges and opportunities for networking and relationship building between innovators, investors, and other experts who took part in the co-creation.

Cross-learning between attendees was a key success factor. The higher number of workshop attendees led to more robust discussions and important observations on the regional financial climate during COVID-19. Key observations:

- Organizations working in the food-value-chain sector were more resilient and had the resources to survive for three to six months.
- During a pandemic, direct prize grants help innovators and SMEs avoid survival risks for a few months.

Virtual events are complementary to, not a substitute for, in-person interactions. Although the finalists liked the virtual workshop and its benefits, they did not view the virtual meetings as a replacement to the in-person meetings and networking events. Instead, they felt that the virtual meeting should be used as a pre- and post-in-person meetings tool to keep the peer-to-peer communication more frequent.

Use extra funds for new activities. After the announcement of the Asia EDGE Ag-Energy Prize winners, there were remaining funds, which were used for the Asia EDGE Ag-Energy Marketing Follow-On Prize. Part of these remaining funds resulted from the money saved due to shifting to a virtual workshop. The funds were used for a closed prize that consisted of finalists who did not win the Asia EDGE Ag-Energy Prize. Key observations included:

- Vouchers ($1,000 and $500) help innovators continue customer outreach activities and, in some cases, carry out new activities when their first instinct may be to cut marketing and administrative costs.
- Supporting marketing and content development can help businesses improve community awareness of their product, increase in sales and leads, and help businesses gain a better understanding of their customers.


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CALLS FOR INNOVATIONS

In November 2020, both the MENA and S/SEA RIHs launched WE4F's first Calls for Innovations. The USAID Secretariat Unit supported both RIHs during the process, contributing to their content development, outreach, and organization. The program faced a variety of challenges during the public application process. As with all activities, one of the biggest challenges was navigating inevitable delays caused by COVID-19 while responding to an urgent need to launch the CFIs and get funding and TA to innovators negatively impacted by the pandemic.

Regarding CFI outreach, the program successfully engaged applicants, but not to internally satisfactory levels. The Secretariat and RIHs faced difficulties reaching countries where

WE4F or the RIH consortium partners do not have strong networks. These challenges resulted in useful lessons learned that can be applied to future CFIs, including those initiated by the GIZ Secretariat and the WA and EA hubs in the coming months.

To learn more about the CFI process, the number of applications and additional lessons learned from the CFI process, read the MENA and S/SEA sections of this report.

CALLS FOR INNOVATIONS LESSONS LEARNED

Have all outreach content ready before launch date. The CKM team should prepare outreach toolkits, blog posts, and other content well in advance of the CFI launch date. The materials should be shared with trusted partners and contain an embargo date. For future CFIs, the Secretariat Unit will work with RIHs to determine other, more-effective methods of targeted outreach in countries that had lower application rates.

Social media and online advertising are crucial. Social media, ads, newsletter placement, and blog posts provide needed outreach and dissemination for the calls. Facebook ads are useful due to their low cost and high return on investment. LinkedIn, on the other hand, is expensive and does not offer valuable results.

Reminders are effective. According to application-portal analytics, the most effective reminders were sent in the last 48 hours of the application process, highlighting the number of hours remaining until the deadline. More than 85 percent of the applications were submitted in the last 48 hours, even though the window was open for six weeks.

06 REGIONAL INNOVATION HUBS

During 2020, the East Africa, West Africa, MENA, and S/SEA RIHs began operating. MENA and S/SEA RIHs were brought on through the co-creation process. Meanwhile, staff for East Africa and West Africa were hired and joined the teams already located in the region. The East Africa RIH was already in existence and changed from being a PAEGC RIH to a WE4F RIH.

Each RIH has a unique perspective on how to impact food security, gender equality, environmental sustainability, and base of the pyramid women and men. In the following four chapters, the RIHs share challenges facing their regions, how they are implementing activities, and what will occur in Year 2.

07 EAST AFRICA

INTRODUCTION TO THE REGION

East Africa holds great potential for food production, because most of the population lives in rural areas and works in agriculture. However, smallholder farmers often face low productivity and high post-harvest losses, two challenges that adversely affect women and BOP farmers. Furthermore, food production uses large amounts of groundwater and traditional energy resources (*e.g.*, diesel, wood), which exacerbates climate change, natural resource depletion, and biodiversity loss. To address these challenges, innovators have developed numerous technologies and business approaches that build climate-friendly, water- and energy-efficient agricultural and food industries. However, East African innovators often have insufficient entrepreneurial capacities to successfully and sustainably scale innovative technologies in local, regional, and global markets.

During 2020, the triple effect of COVID-19, a locust infestation, and floods adversely impacted the region's food and nutritional security and rural livelihoods. According to the African Development Bank's 2020 African Economic Outlook, COVID-related disruptions significantly dampened economic prospects in East Africa. The region's 2020 GDP growth is projected to be 1.2 percent in the baseline scenario and 0.2 percent in the worst-case scenario. Widespread flooding in Ethiopia, Kenya, Somalia, South Sudan, Tanzania, Rwanda, and Uganda displaced about 500,000 people and cut off access to vital farmland. The flooding swept away food crops, created conditions ripe for COVID-19 transmission, and set back key interventions. Many smallholder farmers and SMEs require assistance to preserve cash flow, obtain advisory services to adapt to changing market conditions, and create incentives and added value to encourage local production. SMEs tend to face greater liquidity constraints and limited access to financing than larger firms. A May 2020 World Bank survey indicated that 43.6 percent of Ethiopian microenterprises fully ceased operations in the 14 days prior to the survey versus 26.9 percent of larger firms. Because the program focuses on SMEs, WE4F is well-placed to support East African businesses as they work to overcome current market challenges, advise them on accessing financing, and improve online marketing and training techniques.

The pandemic is accelerating East Africa's digital transformation as businesses use digital services to improve infrastructure, obtain advisory and delivery systems essential for food production, and navigate trade and supply chains. During the 2020 lockdown, more consumers began using digital services and applications. The total volume of mobile banking transactions increased 50 percent in Kenya and 100 percent in Rwanda.

ACTIVITIES

The EA RIH's work falls into three Categories: (i) supporting and collaborating with innovative businesses; (ii) enabling of innovative ecosystems; and (iii) encouraging communication, dialogue, and knowledge transfer. The RIH works in the following countries: Ethiopia, Kenya, Malawi, Rwanda, Somalia, Tanzania, and Uganda.

Year 1 operations were dedicated to setting up the hub structure, including drafting key documents such as the M&E framework and reporting systems; the communication and visibility strategy; and operational plans, budgets, and contracts with local partners. All partners are trained in M&E framework financial reporting and communication and visibility requirements (*e.g.*, WE4F branding). To ensure impact is correctly monitored without overburdening partners, each activity has its own M&E processes and support system (through external surveyors or training).

During 2020, the EA RIH entered into five partnerships with which it has commenced activities. The RIH reached 608 people by organizing virtual events and participating in national and regional conferences. In addition, the RIH began the implementation of four pilot projects in Kenya that focus on solar-powered irrigation systems, solar cooling and milling, reverse osmosis and hydroponics systems, and innovative energy-efficient withering bins in the Kenyan tea industry.

PRIVATE SECTOR ENGAGEMENT

INNOVATORS

To conduct EA RIH's Call for Innovations in early 2021, the hub contracted a regional consortium made up of NIRAS and Intellecap. NIRAS is an interna tional, multi-disciplinary engineering consulting firm with more than 2,100 employees and offices located in Europe, Asia, and Africa. Intellecap is a pioneer in providing innovative business solutions that help build and scale profitable, sustainable enterprises dedicated to social and environmental change.

SMEs will receive investment advice to put them in a better position to attract external investment. In addition, business advisory services will be provided, eventually leading to investment readiness. This includes the exploration of alternative finance sources and ownership models, analysis of investor landscapes; matchmaking with investors; investment strategy; financial modelling; and transaction advisory services.

Despite their importance, SMEs in emerging markets frequently suffer from insufficient access to financing, preventing these businesses from expanding their production and social and economic impact. Entrepreneurs seeking financing in these markets are up against local commercial banks' perception that SMEs are too risky for traditional loans, and that they are too large for the growing number of microfinance programs. This gap in financing leads to what has increasingly been referred to as "the missing middle".

PUBLIC-PRIVATE PARTNERSHIPS

During 2020, WE4F created two Integrated Development Partnerships (iDPP), one with Miyonga Fresh Greens and one with Eenovators Ltd.

Miyonga Fresh Greens
In the case of Miyonga, the East Africa RIH was introduced by a former project partner, the International Trade Centre, which that had previously worked with Miyonga on developing an action plan to become more climate resilient. The RIH picked up the plan and decided to implement aspects of the plan related to farmer trainings and innovative green technologies (solar mill, solar cooling, solar dryer, mobile factory).

This partnership focuses on supporting farmers' climate resilience efforts and piloting climate-smart food processing technologies. The partners work together to train contracted farmers on effective agricultural practices. The trainings help farmers adapt to the effects of climate change, increasing their yields and decreasing pre- and post-harvest losses. Farmers also receive support to pursue organic certification, which will open up new markets and help meet the growing demand for organic products.

Miyonga and the EA RIH also will pilot solar-powered milling and cold storage technologies. These technologies will be integrated into Miyonga's mobile factory. The cold storage extends fruits' shelf life, and the mill transforms dried fruits into fruit powder, adding more value to second-grade fruits and increasing Miyonga's product range. Contracted farmers can sell more of their harvest and increase their income. Miyonga also will train 2,400 farmers on resource-efficient farming practices.

Eenovators Ltd.

In the case of Eenovators, at the time they signed the contract, they were the only internationally recognized entity to train and certify energy auditors in Kenya. The East Africa RIH wanted to support a training and work placement program to make energy auditors a common feature in the tea and horticulture industry. At the same time, the RIH is piloting an energy service company (ESCO) model for energy efficiency, something that had not been done before and that requires trained energy auditors to implement it.

Eenovators Ltd. and the EA RIH joined forces to deliver an innovative mechanism for energy efficiency based on an ESCO model. To mainstream this solution across the region, the partnership pursues a twofold approach: (1) train young professionals to become energy auditors and place them in key agro-industries, and (2) launch one of the first ESCO models for energy efficiency in Kenya. The goal is to use energy efficiency to contribute to greater prosperity, youth employment, and more climate-friendly agro-industries.

On January 19, 2021, the Youth in Energy Empowerment (YEEP) program was launched to equip 21- to 30-year-old graduates who have a background in engineering with the skills and experience needed for employment and entrepreneurship in the energy sector. Eenovators Ltd. will train 10 young people (at least four women) to become water and energy auditors and will organize work placements with tea industry partners and other horticulture-sector partners that can advise them on energy- and water-efficiency measures.

Currently, there are two more iDPP in the East Africa RIH pipeline. The RIH is exploring an iDPP with WeTu, a water and energy service provider in Western Kenya, to pilot a leasing model for solar cooling technologies. It will contribute to improving cold value chains for fish and horticulture produce through off-grid solar cooling solutions. Ultimately, the aim is to increase income from agricultural production and marketing, as well as to create new income opportunities for value chain actors using solar cooling solutions on and around Lake Victoria. Additionally, the hub is exploring the possibility of an iDPP with African Bamboo, a forestry, wood, and bioenergy company in Ethiopia, and Ecosia, a search engine that reinvests 80 percent of its profits in reforestation. The objective of this partnership is to develop a sustainable bamboo agroforestry system to improve local water management and ensure wood supplies for African Bamboo.

CAPACITY DEVELOPMENT

As part of the WE4F webinar series, "Where Do We Go from Here? Lessons Learned for Future Water-Energy-Food Programming", the EA RIH organized the November 24th webinar, "An All-Around Take on Capacity Development for Solar-Powered Irrigation". The session touched on the challenges, opportunities, and lessons learned in capacity development for solar irrigation. Speakers discussed the lessons learned during online and off-line trainings for the Solar-Powered Irrigation Systems (SPIS) Toolbox, a web-based solution for the budgeting, design, and maintenance of SPIS; the launch of the new SPIS app; and other final activities conducted under PAEGC, such as the production of a TV show that explains SPIS to farmers. The SPIS Toolbox also includes tools that focus on soil type, impact assessment, and water resource management, so farmers interested in pursuing SPISs can minimized their effect on the environment and natural resources.

The target audiences of East Africa RIH's capacity development includes farmers, SMEs, WE4F innovators, and other stakeholders within the water-energy-food nexus. Several grant agreements and iDPPs were set up in East Africa to support the following awareness campaigns that are disseminating information about innovations through trainings and other methods:

Energy 4 Impact will conduct a radio campaign to promote solar-powered irrigation systems and train financial institutions on the risks and benefits of SPIS in Tanzania. This should lead to a greater awareness of SPIS technologies and better access to finance for farmers, enabling them to make use of a sustainable energy solution for agricultural production.

Turkana Basin Institute will set up an integrated, solar-powered reverse osmosis and hydroponics system to train young entrepreneurs to grow and market vegetables in the arid northern Kenya. Not only will these entrepreneurs be able to generate an income from vegetables sales but they also will contribute to improved nutrition and food security in a part of Kenya where vegetables can barely grow.

The Centre for Biomass Energy Studies of Kimathi University will undertake trainings on energy and water management with stakeholders in the tea industry in Kenya, resulting in the adoption of more water- and energy-efficient processing methods and technologies. The team will pilot energy-efficient withering bins as part of this project.


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COMMUNICATIONS AND KNOWLEDGE MANAGEMENT

KNOWLEDGE PRODUCTS

In East Africa, the RIH worked on several resources and tools to disseminate information about water- and energy-efficient innovations:

- An interactive map that uses GIS data to indicate biophysical and socioeconomic suitability for SPIS in different areas of West Africa and East Africa;
- An Android app version of the SPIS Toolbox developed under PAEGC that allows users to save data, make calculations, and design SPIS, even without an internet connection; the app itself was financed through the PAEGC, but WE4F completed refinement and distribution of the app; and
- A water-mapping methodology that offers a method for tracing water-use along food value chains and identifying hot spots for targeted water-efficiency measures.

KNOWLEDGE EVENTS

The RIH was involved in several events to establish a presence in the relevant regional sectors and to promote the work of WE4F and its partners:

- On July 1, 2020, the RIH presented its assessment of the market for productive energy-use in Sub-Saharan Africa to 473 participants at the GET.invest event called The Potential of Agri-PV in Africa to 473 participants. This was an industry event to raise awareness of the WE4F initiative among potential private sector partners and investors.
- The hub supported the 2020 World Energy Day Conference held October 21 to 23, 2020, in Nairobi, Kenya. The virtual event was attended by more than 80 delegates

from organizations within the energy sector, including WE4F partners, Eenovators, and Ariya Finergy. The event reached energy professionals, as well as the wider public, to draw attention to the latest technological and financial solutions in the sector.

- On November 24, 2020, WE4F and Miyonga jointly presented their work at the virtual Agrofood and Plastprintpack Trade Fair to 40 attendees. This was an international trade fair that enabled Miyonga, one of the WE4F private sector partners to showcase its work and inspire others to shift toward solar technologies for food processing.

ADVOCACY AND ENABLING ENVIRONMENTS

Over the course of 2020, the EA RIH engaged several technical networks and associations to network and initiate discussions for joint activities. These organizations were GOGLA, CLASP, GIZ Sector Network Rural Development (SNRD), the German Agribusiness Alliance (GAA), the Shell Foundation Investor Summit, the African Green Revolution Forum (AGRF), the GET.invest/DRE roundtable, and the Agrofood Trade Fair.

The EA RIH contributed to the public consultation process on the draft Kenya Solar Photovoltaic Systems Regulations organized by the Government of Kenya's Energy and Petroleum Regulatory Authority (EPRA). The draft regulations were published in the Kenya Gazette on January 31, 2020. Stakeholders were asked to provide comments during a 40-day period, as required by the Statutory Instruments Act, 2013. EPRA held the final Public Participation Workshop on December 11, 2020.

The EA RIH and the "Indo-German Energy Programme – Promotion of Solar Water Pumps began planning an exchange on solar-powered irrigation. The exchange includes a series of webinars prior to a study tour; targeted matchmaking between businesses in India and East Africa; and discussions of subsidies, tariffs, and standards with policymakers. As a result of the COVID-19 pandemic, activities have stalled.

PARTNERSHIPS

EA RIH explored partnerships with financial institutions (*e.g.*, funds, foundations, and microfinance institutions), industry associations (*e.g.*, GOGLA, TEREA), and other key stakeholders. In Year 2, hopefully, these partnerships will come to fruition, allowing the RIH to engage key stakeholders to build the region's innovation ecosystems. Currently, discussions are ongoing about engaging with a portfolio of existing funds to leverage additional external funding through the WE4F-provided technical advisory services. However, there were significant challenges in setting up and implementing these contracts due to (1) COVID-related travel and meeting restrictions; (2) slow internal processes, especially for procurement of goods; and (3) difficulties obtaining import tariff and VAT exemptions in Kenya.

ACCESS TO FINANCE

Through a grant agreement with Energy 4 Impact, the EA RIH is partnering with a variety of small-scale irrigation companies in Tanzania to provide financing options to smallholder farmers, including pay-as-you-grow models aligned with harvesting periods. The hub is beginning to explore different access-to-finance mechanisms with financial institutions such as VisionFund Tanzania (VFT) and FINCA Microfinance, including extending collateral-free loans to productive use of energy (PUE) businesses. The RIH is also discussing revenue-based financing (RBF) and other options with Energising Development (EnDev) and others.

EA RIH EXPECTED OUTCOMES AND IMPACTS

- 65,000 smallholder farms (30% of which are women-led) have introduced climate-friendly, energy- and/or water-efficient innovations prop-agated by innovators (1 of which uses digital solutions).
- 2,500 multipliers (40% of whom are women) from sector or value chain organizations, technology insfitutes/technical schools, advisory services, support institutions, etc. are informed about the potential of climate-friendly, energy- and/or water-efficient innovations within the framework of capacity development measures.
- 12 demo measures that show end users and multipliers the potential of climate-friendly, energy- and/or water-efficient innovations for productivity and income increases have respectively been carried out in three countries of the hub region.
- 6 partner organizations or companies presented their experiences with innovative approaches at specialist events at regional, interregional and global level.
- 1 Strategy, guideline or project of international, regional or local organizations disseminates the climate-friendly, energy and/or water-efficient innovations supported by the project.
- 4 exchange formats to design conducive framework conditions for the dissemination innovations.

4 funded innovators market innovations with sales increases of 20% on average compared to before funding

1 newly developed or adapted financing mechanisms, which consider the specific needs of the target groups, are available to end-users of innovations.

25 processing companies introduced climate-friendly, energy- and/or water-efficient innovations

1 instrument for the dissemination of climate-friendly, energy- and/or water-efficient innovations is operational.

6 business models that impact CO2 or energy/water conservation developed by new or already established innovators.

1 measure to improve the framework conditions for introduced to the relevant decision-making bodies

Raised total of USD 4 million in additional funding

2 innovators have established sales structures in a different country of the region.

RISKS, CHALLENGES, AND LESSONS LEARNED

ASSESSMENT OF RISKS

Risk assessment is a key activity in the East Africa RIH, as the hub often has to pivot to address technical and financial risks that change over time. In Year 1 of WE4F, the RIH outlined that political and economic instability in the region could inhibit RIH activities. Indeed, the economic instability caused by climate change, COVID-19, and political instability, affected the ability of the RIH to complete many Y1 activities. As a result, the RIH shifted some activities to Y2. By using the PPP model in Y1, the hub was able to mitigate the risk of distorting local and regional markets, as the companies also had to put up funding and the Y1 expansion was limited. The hub will continue to focus on this in Y2, because there is increased risk for distortion now that the hub is working with more local companies through the call for innovation scheduled for summer 2021. The hub continues to be limited by COVID-19 impacts and is shifting to remote activities to continue to operate in a limited capacity.

The full risk assessment table is available in Annex IV.

CHALLENGES

The RIH encountered several challenges when preparing the EA RIH Call for Innovations that the hub will focus on resolving throughout 2021:

Objectives. Within the WE4F initiative, two sometimes contradictory objectives are achieving high growth and achieving high impact. On one hand, the indicators of Output 1, 2, and 3 set ambitious growth targets for SMEs. On the other hand, the desired impacts relate to vulnerable BOP groups with high standards for environmental and climate footprints, which may not be the most profitable customer segment. It is important to be aware of any discrepancies to find a balance and meet all objectives. The East Africa RIH met these challenges with the iDPPs during 2020 by focusing on the sustainability goals of the RIH while meeting commercial business interests. The iDPP partners must commit to creating a lasting, sustainable change and provide at least 50 percent of funding for the iDPP. Also, all iDPPs maintained by the East Africa RIH must increase efficiency in leveraging public and private financial resources, be effective in reaching joint objectives, and promote sustainability by offering a way to continue activities after the partnership ends.

Regional distribution of activities. The RIHs are expected to work in a range of countries within their respective regions. However, during CFIs, innovator selection follows a competitive process with agreed-upon criteria, which does not necessarily ensure a balanced regional distribution. The RIH needs to make sure to conduct other activities in all countries to ensure proper regional distribution.

LESSONS LEARNED

The EA RIH found the RIH structure to be extremely valuable. It allows the team to engage closely with local partners, respond quickly to local challenges, and contextualize WE4F's work, so the program is as effective as possible in the target countries.

Financial and technical assistance is needed to elevate early-stage businesses to a growth stage where they can independently raise capital, enter new markets, and pursue mainstream innovations. In addition, local business development remains a high priority in East Africa for economic development. Increasing competition for fewer investment deals has translated into a need for all businesses (regardless of size and

stage) to provide investors with stronger business cases, to conduct longer and more-detailed proofs of concept, and to validate more-certain paths to profitability.

RECOMMENDATIONS FOR PRIORITY DIALOGUE AND POLICY

Food security and access to nutrition must remain of the highest priority for both rural and urban areas in East Africa, because the number of food insecure people in the region estimated to increase in 2020 to an estimated more than 41 million people as a result of COVID-19, including an estimated 14 million who live in urban areas.[20]

Over the last year, the importance of water for irrigation within the region has become abundantly clear. With extreme weather events, particularly droughts, threatening yields in East Africa, small–scale irrigation has the potential to boost agricultural productivity, strengthen food security, and transform subsistence farmers into commercial agents. SPIS offers an affordable, green, off-grid solution to small-scale farmers that can result in significant increases in productivity and income. In areas with unreliable or expensive access to energy, SPIS contributes to rural electrification, reduces energy costs, and enables the development of low-carbon irrigated agriculture. Studies show that in Kenya, increased yields could lead to an increase of daily income by an average of 177 percent in 10 years.[21]

The EA RIH will continue its work on anchoring SPIS, particularly through the use and dissemination of the SPIS Toolbox. At the same time, regional dialogues need to embrace SPIS as a valid tool for food security and climate adaptation and start actively promoting it, for example, through subsidies and lowered or zero import tax for solar panels.

LOOKING FORWARD

The EA RIH will carry out its first CFI in the first quarter of 2021. The hub will also continue providing TA to established private sector partners and set up new partnerships, where relevant. The hub will begin conducting a market intelligence study using the PESTEL methodology, to explore the ways energy-efficiency technologies business models could be expanded to other East African countries.

EA RIH plans to support its newly identified innovators by setting up demonstration sites for their technologies throughout the region. These sites will include SPIS sites in Kenya and Tanzania (with the possibility of Uganda and Ethiopia); reverse osmosis and hydroponics systems at the Turkana Basin Institute in northern Kenya; and Miyonga Fresh Greens will set up its solar milling and cooling systems at various locations in Kenya. Furthermore, the partnership with WeTu will establish solar ice makers in Kenya, and the Centre for Biomass Energy Studies (CBES) will install withering bins in Kenya, and possibly Rwanda.

The hub is planning trainings, including sessions for financial institutions, that will share information about hydroponics and entrepreneurship, energy audits, energy and water management processing, climate-smart agricultural practices, and SPIS.

To ensure the continuity of some of the most promising SWFF and PAEGC innovators, the EA RIH conducted a comprehensive review of their performance and needs. Based on this information, the hub is exploring a variety of mechanisms for innovator support, ranging from TA on investment readiness to marketing.

20. WFP, August 2020. East Africa - Impact of COVID-19 on Livelihoods, Food Security & Nutrition: Urban Focus. / 21. Mercy Corps, AgriFin. June 2020. Policy Brief: Achieving Food Security in Kenya through Smart Solar Irrigation.

For each innovator, an Action Plan (AP) will be developed to identify the goals, interests and financial and technical assistance needs. This includes skills development (*e.g.*, leadership, mentoring, talent acquisition, business and team management, strategic planning, etc.) and knowledge to understand, manage, and develop business models and operations, and facilitate exchange among innovators and other relevant stakeholders within one country and between countries. In the long-run the development of those business models should make the innovators more independent, effective, and external-investment-ready.

Business advisory services to SMEs may include, but are not limited to the following: business model review, business growth strategy, proposal writing, development of sound financial management systems, creation of efficient audit systems, talent acquisition and retention (HR), social media management, marketing, impact measurement and control of quality of products/services; effective strategies for team management/ leadership; and advisory services on specific business issues, such as standards, import tariffs, supply chain management, and certifications.

The RIH will also collaborate with new partners to explore or adapt financing mechanisms; for example, the hub may collaborate with monetary financial institutions (MFIs) and savings and credit cooperative societies (SACCOs) to provide locally adapted solutions.

NIRAS, the regional implementing partner for the East Africa RIH CFIs, will advise SMEs on possible financing and investment models, and facilitate linkages with investors, investor networks, and financial institutions. Ultimately, this should result in leveraging additional funding and close funding gaps. The EA RIH, together with NIRAS, will pursue dialogue with financial institutions and investors to raise awareness about innovators' potential and funding needs. It includes raising awareness for the development of innovative financing solutions, the introduction


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of new products, the growth of existing products to new markets, and the presence of new investors. This should result in the deployment of significant new private sector capital from institutions that would otherwise not participate in impact investments.

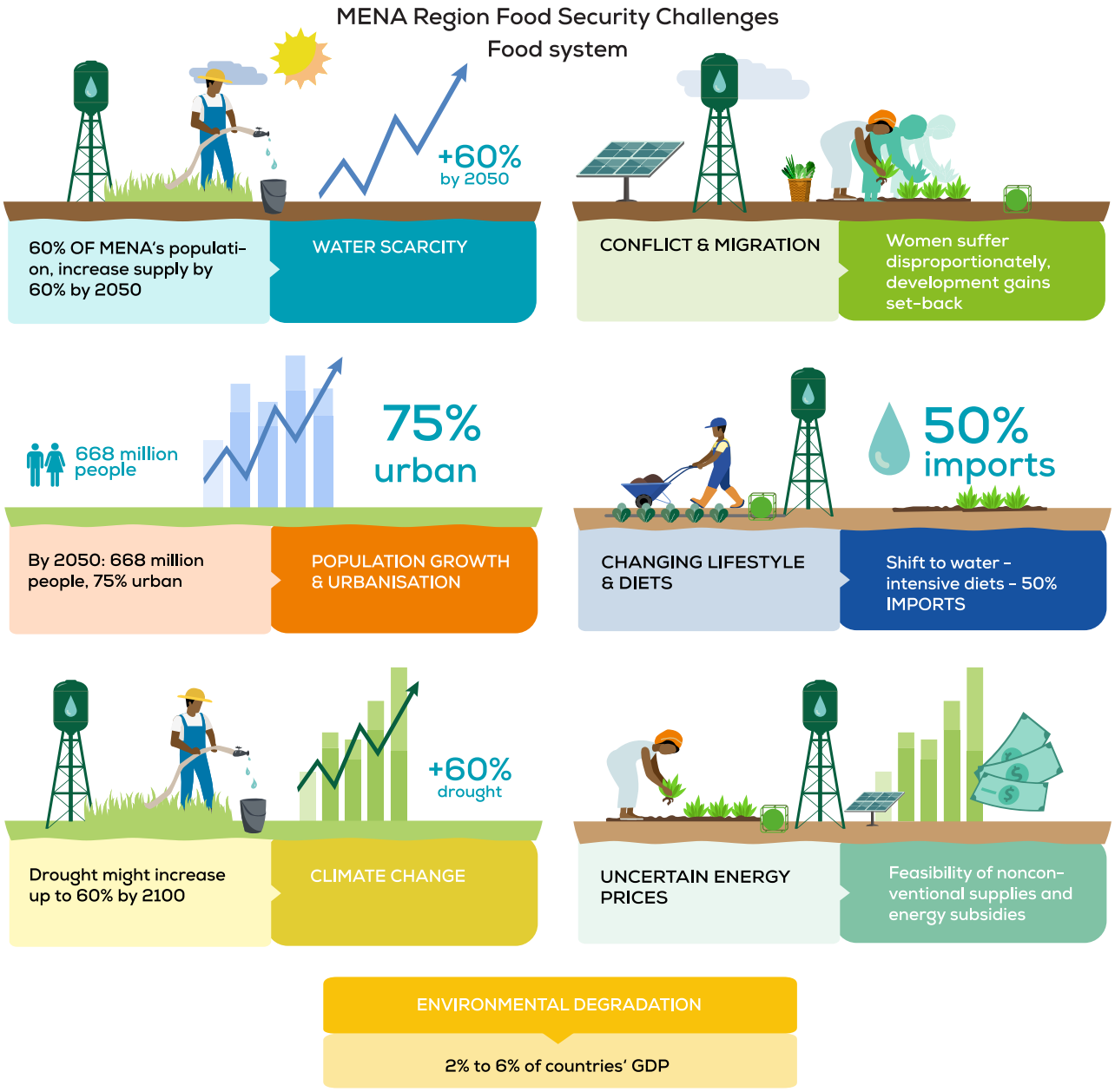
To improve the environment for innovations and advocate for wider dissemination, the EA RIH will participate in and contribute to technical and sectoral networks and industry associations to promote enabling policies. To further disseminate water- and energy-efficient innovations, the RIH will facilitate the participation of partner organizations and innovators at key events and conferences. Additionally, the RIH will continue developing knowledge platforms and tools, such as the suitability map for SPIS and the methodology for reducing water inputs. Finally, the EA RIH will develop new decision-making tools for solar cooling technologies and collaborate with research institutes and universities to publish impact studies and market assessments.

08 MIDDLE EAST AND NORTH AFRICA

INTRODUCTION TO THE REGION

The MENA region is one of the most socially and environmentally diverse regions in the world - and home to some of the globe's most pressing challenges. Among those challenges are water scarcity, environmental degradation, unemployment, conflicts, and increased migration. Tackling WEF nexus issues is imperative for achieving political and social stability, food security, and sustainable development in the region.

Countless intervention programs exist across the region. However, many of them are not sustainable nor long-term, do not actively involve the local population, and contribute little to creating prosperity and social cohesion. In addition, the legal and regulatory context for innovative solutions is often unfavorable, and financing opportunities are scarce. This leads to detrimental bottlenecks in the development of an entrepreneurial approach to WEF nexus challenges.



Formed in July 2020, the MENA RIH focuses on catalyzing innovation and scaling local solutions of impact-oriented mid- to late-stage enterprises in 10 MENA countries: Algeria, Egypt, Jordan, Iraq, Lebanon, Morocco, the Palestinian Territories, Tunisia, Sudan, and Yemen. During the first months of operation, the MENA RIH focused on building staff capacity and establishing best practices and guidelines, creating RIH visibility and recognition in the region, exploring partnership opportunities, and implementing the first CFI.

2020 ACTIVITIES

The MENA RIH team's main tasks in the first stage of implementation were establishing processes, work plans, and standard operating procedures and successfully concluding the first CFI.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PRIVATE SECTOR ENGAGEMENT

Prior to the public application stage of the CFI, the MENA RIH reached out to several key stakeholders in the region, including impact investors, academics, accelerators, international financing institutions (IFIs), development finance Institutions (DFIs), and potential partners. These stakeholders were introduced to WE4F to gauge their interest and help identify WEF nexus innovators with the highest potential for scaling and creating a substantial impact on cross-cutting issues such as gender inclusion, poverty reduction, and environmental sustainability.

The outreach proved successful on various levels. Innovators were introduced to the selection process and stakeholders exhibited interest in acting as ambassadors for the program and developing partnerships. Investors and financiers expressed enthusiasm for reviewing selected companies' portfolios to assess them from an investment standpoint and to potentially fund their growth. Stakeholders also helped the MENA RIH connect with other relevant parties in the region who can potentially act as investors, facilitators, or partners.

The Donor Partners also played a major part in outreach by exploring potential collaboration opportunities with IFIs and DFIs, including the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), and the Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden (FMO). Through ongoing discussions, potential collaborators will determine how best to cater to MENA innovators' financing requirements. In due time, other financing mechanisms can be explored on country and regional levels. The Donor Partners also connected the RIH with NpM, a Dutch platform that promotes inclusive finance. MENA RIH and NpM will carry the discussion forward, exploring a partnership and working together on areas such us end-user financing and SME investment facilitation.

CALL FOR INNOVATIONS

On November 3, 2020, the MENA RIH launched its first CFI with proven solutions to help meet the region's most pressing water, energy, and food security challenges. The CFI lasted from November 3rd through December 15th, 2020. Afterwards, up to 25 mid- to later-stage enterprises with proven track records, existing customer bases, and recurring sales will be invited to receive a broad portfolio of support mechanisms, including tailor-made funding, technical assistance (TA), networking, and

investment matchmaking. Through this competition, WE4F anticipates disbursing $4.5 million in award funding (TA and Grants) for MENA and access to a regional and global network of key stakeholders. Individual awards for innovators are expected to range from $25,000 to $300,000, depending on the type of funding requested.

In addition to hard criteria, including sales, operational standards, sound management, transparency, and accountability, WE4F places a focus on the Sustainable Development Goals (SDGs) when assessing an innovator's eligibility. The MENA RIH validates all candidates' commitment to the sustainability of agricultural food value chains, the improvement of energy and water efficiency, and promotion of climate resilient agriculture by using strict environmental, social, and governance (ESG) criteria. Innovators are also expected to be committed to successfully supporting vulnerable populations and integrating them into the supported innovators' approaches. The MENA RIH will ensure gender integration criteria by empowering women-led enterprises and enterprises that make gender integration and base of the pyramid beneficiaries a cornerstone of their business.

Innovators must also be based in one or several of the following countries and territories: Algeria, Egypt, Jordan, Iraq, Lebanon, Morocco, The Palestinian Territories, Tunisia, Sudan, and Yemen.

The MENA RIH launched its CFI on November 3, 2020, and closed it on December 15, 2020. During this period, the hub received 139 concept notes with 87 qualified proposals that fall into the following categories:

- The innovators are mainly targeting deployment of their solutions in Lebanon, Egypt, and Jordan, with a large portion also targeting more than one MENA country.
- About 30 percent of the innovators have more than 40 percent women in their workforce, and about 40 percent have more than 40 percent women on their senior and founding teams.
- About 45 percent of the innovators had more than 1,000 direct customers in 2020, and 32 percent had more than 5,000 direct customers.
- About 60 percent of all applicants operated in two aspects of the WEF nexus, about 40 percent of that pool with business models that directly or indirectly tackle all three.
- Water-for-food solutions represent about six times the energy-for-food solutions.

Eleven assessors from the MENA RIH short-listed 36 innovators to proceed to the Full Proposal Stage, which opened on December 22, 2020, and closed on January 22, 2021. The short-listed innovators:

- Mainly target Lebanon, Egypt, Jordan, and Morocco;
- Mostly provide farm production, agriculture processing, energy production and infrastructure, irrigation, and digital solutions to improve the water- and/or energy-efficiency of agricultural and food processes;
- Have workforces composed of more than 40 percent women; and
- Have more than 40 percent women on their senior and founding teams (true for about half of the short-listed innovators).

On January 26, 2021, the hub began its Full Proposal review stage with 13 Regional Advisory Body (RAB) members, who have diverse technical, market, and ESG backgrounds. The review was scheduled to end on the fifth of February, after which key experts from both the MENA RIH and RAB planned to interview the innovators.

COMMUNICATIONS AND KNOWLEDGE MANAGEMENT (CKM)

During 2020, the RIH CKM team reached several key milestones and deliverables, including formulation of CKM strategies. MENA RIH received training on WE4F MENA CKM's components in

November 2020. The hub also implemented an RIH-wide customer relationship management (CRM) system to aggregate and manage the MENA RIH's contact lists and streamline outreach efforts.

During the first CFI, the CKM team oversaw outreach efforts and held two webinars to engage directly with and answer questions from interested applicants. Interest and engagement rates were high for both webinars, which were hosted in Arabic and English. The CFI Q&A Webinar on November 23, 2020, had a total of 235 registrants - 113 registered for the English session, 60 registered for the Arabic session, and 62 registered for both. Ultimately, about 40 women and 87 men joined the webinars.

The CKM team used the WE4F website and social media channels to promote the call and attract applicants. The MENA CFI webpage attracted 5,464 unique viewers and 1,450 click-throughs to the application. The top countries for webpage visits and application clicks were Egypt, Lebanon, and Jordan.

Channel	# of Posts	Impressions	Clicks	Shares	Likes
Facebook	59	2,4889	169	119	352
Twitter	35	10,526	58	22	33
LinkedIn	55	3,659	109	49	125
YouTube	1	724	N/A	12	13

To raise WE4F's profile and increase brand recognition, the CKM team relied heavily on the consortium partners' existing networks and WEF influencers (*i.e.*, extremely well-connected individuals within the MENA WEF nexus and business ecosystems); this helped the hub reach millions of viewers.

MENA RIH Influencers	
Regional	For9a
	CMI
	SWEP
Lebanon	Foundation Diane
	AlFanar
	Makensense
	Beyond RD
	Waterlution
	Rural Entrepreneurs
	ACTED
	UNDP

Jordan	INJAZ
	BDO
	World Food Programme (WFP)
	Hassad
	Ipark/Queen Rania Center
	International Rescue Committee (IRC)
	Shamal Start

The CKM team also contributes to the global WE4F content schedule to share regional stories and highlight local challenges and solutions. More details about WE4F's website and social media presence can be found within the Secretariat Unit's Activities section in this report.

ADVOCACY AND ENABLING ENVIRONMENTS

The MENA RIH's work on the WEF nexus enabling environments aims to provide innovators and partners with a practical framework to identify bottlenecks, challenges, and opportunities that affect business activities and sector development. The team began collecting and reviewing existing innovator policies within the WEF nexus, which shed light on key agricultural, water, and food security policies. This policy compilation provides the foundational references for WE4F country profiles that will be developed in 2021. The MENA RIH plans to conduct multi-stakeholder dialogues to discuss the main barriers and bottlenecks and how to overcome them. Lessons learned on overcoming barriers and bottlenecks will then be transferred to other countries.

To promote the MENA RIH's outreach to innovators and map potential partnerships, staff introduced the hub at numerous events to target audiences (*e.g.*, policymakers and decision-makers, young professionals, innovators, donors, local missions, BOP farmers, water and agricultural professionals). Attended events include the International-Cairo Water Week 2020; Innovative, Youth-Driven Solutions for Water and Energy in the Mediterranean Forum; WaterEnergyNEXUS conference in Tunisia; and the kickoff meeting of the International Chamber of Commerce (ICC) and the United Nations' Economic and Social Commission for Western Asia (ESCWA) Regional Centre of Entrepreneurship.

PARTNERSHIPS

During 2020, the CKM and investment teams, in coordination with the partnership coordinator, began mapping potential partners. A key objective in 2020 was to leverage the consortium's regional network to enhance outreach to qualified innovators and service providers. No formalized partnerships were established in Year 1, but the individual hub teams have already begun to define areas of support that would be critical for leveraging complementary partnerships. This includes identifying partners with expertise and experience in areas such as end-user financing approaches and innovative impact financing mechanisms in WEF sectors. It also means identifying partners that can provide key WEF business (environment) expertise in countries with high potential innovations but limited consortium presence, such as Morocco.

There is a great interest from the League of Arab States, through its high-level technical committee and ministerial council, to partner for food production innovations. Currently, this is under discussion and assessment.

MENA RIH EXPECTED OUTCOMES AND IMPACTS

To track and assess the MENA RIH progress toward achieving its targets and results, the hub developed a comprehensive MEL Operational Plan built on the WE4F PMEP.

Additionally, the MENA RIH drafted an awardee manual that encourages innovators to strengthen their capacity in M&E-related topics. The manual, Understanding WE4F M&E Requirements, outlines all relevant M&E processes and guidelines for innovators throughout their engagement with the hub.

- 750,000 smallholder farmers and other end-users - of which 25% are women adopt water- and/or energy-efficient WEF innovations in their activities.
- 300,000 farmers and other end-users - of which 25% are women - experience as increase in income.

Support 40+ innovators

30% of final CFI applicants are women-led or women-owned businesses

Nearly 2 million tons of additional food will be produced

Water consumption is reduced by more than or equal to 760 million liters

12.5% savings in energy in the food value chain

Contribute to environmental sustainability while scaling WE4F innovator solutions

More than $7.5 million in additional funding

Leveraging innovations through partnerships

RISKS, CHALLENGES, AND LESSONS LEARNED

RISK ASSESSMENT

Risk assessment is a key activity in the MENA RIH, as the hub often has to pivot to address technical and financial risks that change over time. In Year 1 of WE4F, the RIH outlined that political and economic instability, as well as COVID-19 related challenges, in the region could inhibit RIH activities. Indeed, COVID-19 affected the ability of the RIH to complete many Y1 activities. As a result, the RIH shifted some activities to Y2. The MENA RIH continues to monitor risks and will update the matrix accordingly. The full risk assessment table is available in Annex IV.

CHALLENGES

COVID-19

The MENA RIH faced pandemic-related challenges that interfered with hub logistics, activity planning, and the sequence of activities. Travel restrictions, both local and regional, led to difficulties in team coordination, penetration of local markets for recruiting, and engagement with innovators, investors, and partners. As a result, the MENA RIH shifted to a mostly virtual working mode, and staff relied heavily on online tools to enable a smooth workflow.

Despite logistic hindrances caused by the pandemic, the MENA RIH's local roots, vast networks, and thorough understanding of WEF markets helped ensure outreach to and engagement with the right partners and enterprises. Pivoting and adapting quickly allowed the MENA RIH team to successfully deliver on key Year 1 milestones.

GEOPOLITICAL INSTABILITY

In the very early stages of implementation, MENA RIH faced geopolitical instability due to a devastating explosion caused by improper storage of explosive material in the port area of Beirut, Lebanon. The RIH's main center of operations in Beirut was destroyed in the blast, so work and kickoff activities were delayed by several weeks. However, the RIH team quickly adapted to the challenges and became fully operational before the end of the year.

LESSONS LEARNED

CALLS FOR INNOVATIONS

The key lessons learned in 2020 centered on the MENA RIH's first CFI. Many qualified applications were submitted, and attendance and outreach figures were satisfactory, but there is room for improvement. The most notable lessons are the need for more business-oriented language, stronger outreach in countries within limited applications during CFI1, and additional application support. Lessons learned throughout the first call will inform the second CFI, which is planned for the last quarter of 2021.


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Outreach language must align with business language. The MENA RIH's greatest challenge was convincing enterprises and entrepreneurs that the CFI was intended for them. Most innovators are unfamiliar with donor agency funding

opportunities, so programs can run the risk of the same enterprises and entrepreneurs always receiving funding and support. To address this, the MENA RIH worked with the Secretariat to release new social media content that used business-oriented language. The CKM team observed what terms and language worked to reach the right kinds of potential applicants and what did not work well. Terms such as "innovators" and very technical language did not resonate with businesses.

Content should be more visually appealing. In future calls, information needs to be broken down into bite-sized, digestible chunks to make sure busy entrepreneurs can pick it up and process it. The use of effective language may be solidified further through feedback collection and focus groups. Content must also be produced in local languages at the beginning of the CFI, rather than developed and released throughout the call. More visual content must also be developed to raise engagement rates and show examples of innovations that WE4F has supported or that fall within the scope if the program. This could help potential applicants better understand whether they might qualify.

Need for additional application support. Key requisites, such as minimum number of end-users, caused some confusion among applicants and should be more clearly broken down. Another idea the MENA RIH is considering is to offer optional general gender and ESG trainings to all potential applicants before they submit their applications. This could help make sure they meet WE4F program standards.

RECOMMENDATIONS FOR PRIORITY DIALOGUE AND POLICY

ENABLING ENVIRONMENT

When reviewing WEF nexus policies, it was discovered that several of the policies are still unclear to innovators and they need frequent

updates and further clarification on the state of existing policies. For example, while conducting outreach activities in Lebanon, several interested innovators highlighted the importance of clarifying that municipalities can charge agricultural communes for local wastewater management and renewable energy solutions. This should be explored further. Additionally, it is key to have a decree related to the law exempting environmentally friendly products from customs inspections.

LOOKING FORWARD

Following the selection of the first round of innovators, the MENA RIH will conduct a series of induction and innovator preparation workshops, followed by a boot camp and then the Investment Readiness Program and TA programs (delivered by the RIH or external service providers), while also providing partnership development, knowledge management, and policy recommendations.

The induction and innovator preparation workshops will equip innovators with the knowledge and tools they need to refine the business models and action plans submitted during the Full Proposal stage. The workshops also help prepare innovators to determine their growth objectives, strategies, and transformation plans. Based on our initial assessment and feedback from the CFI evaluations, the workshop topics could include business modeling; market sizing, segmentation, and calculation of reach to end-users and direct customers; and environmental, sustainability, and gender criteria.

Building on the workshops, the boot camp will delve deeper into the topics needed to help innovators finalize their transformational plans. The boot camp will include a mix of lectures, business development tools and frameworks, regional case studies, and opportunities for group exercises and discussions in online breakout rooms, plus opinion polls and peer-to-peer learning opportunities. The hub is also considering preparing prerecorded sessions, if needed, to ensure innovators come to sessions prepared with fundamental knowledge and "food for thought." Content will be customized to selected innovators, common challenges, and areas of improvement identified through internal and external evaluation of the CFI Full Proposals. The boot camp (number, format, order, types of sessions) is currently being finalized and adjusted in consideration of the need to move the sessions online due to COVID-19.

The MENA RIH will also support innovators as they strive to produce well-articulated expansion plans to start the journey of investment readiness and TA preparation. The workshops and boot camp, along with the diagnostic assessment, will provide the inputs needed to identify innovator strengths and weaknesses, financing requirements, and the type of TA each requires to create a full-fledged acceleration plan to be delivered by the MENA RIH. The TA team assessed successful end-user financing models from around the world and identified seven end-user financing and digital-solutions start-ups and their business models: M-Kopa (Kenya), FarmDrive (Kenya), myAgro (Mali), Farmcrowdy (Nigeria), Hello Tractor (Nigeria), FarMart (India), and Atikus Insurance (Rwanda). These cases will be integrated and elaborated on with innovators in the IRP and TA programs. Through the diagnostic assessment, the team seeks a deeper understanding of innovators to reveal key end-user access opportunities they could deploy.

Additionally, the TA team is developing stand-alone renewable energy market outlook knowledge products covering Lebanon, Jordan, Morocco, and Egypt. This literature's purpose is to provide various stakeholders with a summary of key market features, data, risks, considerations, opportunities, and reflections on organizations operating in the WEF nexus, Outputs from the market outlook could be

integrated into workshops, IRP and TA programs, and the knowledge pool developed by CKM. The MENA RIH team will also leverage and contribute to the we4f.org Resources Page.

Regarding gender, the environment, and ESGs, RIH advisors will conduct an in-depth assessment on the level of support needed for innovators' women workforce, environmental impacts, and ESG practices, including revising policies and delivering soft-skills training and supervisory-skills trainings. With a "do no harm" approach, the above-mentioned diagnostic assessments will help advisors better direct innovators to create the right support for women end-users the right environmental preservation tools, and the right governance tools to scale.

Simultaneously with the delivery of the Investment Readiness Program, the Investment Unit, supported by other relevant RIH units, will map and approach financing institutions and financiers that could leverage innovators' solutions or business models. To establish linkages with WE4F, the Investment Unit will build on the MENA Investment Landscape Mapping Report database and on the WE4F Donor Partners' potential financing partnerships to approach IFIs, DFIs, and other donor programs. Every year, the MENA RIH will conduct a demo day to showcase innovators' solutions and to create connections among innovators, financiers, and partners.

To fulfill the RIH mandate of raising funds from the private sector, key hub experts will work closely with carefully selected innovators that are on track in their transformational process and have the potential to raise funds from private investors and lenders. The RIH will provide tailored support to innovators, and the Investment Unit will work closely with financiers to assist them in evaluating each investment opportunity. Support for financiers

could include conducting due diligence and risk assessment, acting as an intermediary alongside the IRP and TA advisors, and addressing in a fair and transparent manner all inquiries that may come up throughout the assessment process.

As soon as possible, the team will explore innovations that qualify for special tailored finance programs in Lebanon and Egypt. Once these technologies are identified, the MENA RIH will engage with banks and FIs that might be interested in expanding or developing WE4F's financial products and services.

09 SOUTH AND SOUTHEAST ASIA

INTRODUCTION TO THE REGION

The South and Southeast Asia region has seen remarkable economic growth in the past two decades, leading to a projected decrease of 13 million undernourished people between 2015 and 2024. However, this progress is not uniformly spread over the region; millions of people remained malnourished and poverty rates in several countries remain high. The region is also prone to many natural disasters with intense cyclones, excessive rainfall, severe floods, drought and extreme weather, leaving vulnerable groups at risk and forced to adapt quickly to the disasters' effects. Meanwhile, food production often involves traditional or intensive water and energy uses that exacerbate climate change, deplete natural resources, and cause biodiversity loss.

To address these issues, private enterprises have developed a variety of approaches and technologies for climate-friendly, water- and energy-efficient agricultural processes. These innovators, however, often have insufficient entrepreneurial capacities to successfully and sustainably scale up developed prototypes, access catalytic investment, integrate gender into their operations, or engage with policy and regulation environments. The S/SEA Investment Landscape Mapping Report suggests that to help facilitate capacity building and scale-up for the enterprises, support is needed to bridge the gap in establishing market linkages, accessing new markets, raising stage-appropriate capital and navigating the business

COVID-19

The pandemic is significantly affecting the region's economy both directly (e.g., domestic lockdowns and travel restrictions) and indirectly (e.g., supply and demand shocks in supply chains). South Asia and Southeast Asia report food supply chain disruptions and a surge in related unemployment. Southeast Asian poverty rates rose for the first time in nearly two decades, and millions could be pushed back below the poverty line before the pandemic is under control. South Asia is also particularly at risk. India is one of the most-affected countries.

Vulnerable groups are hit the hardest by the pandemic. UN Women and the UN Development Programme (UNDP) project that the female poverty rate will increase in 2021, with more women than men in the 25 to 34 age group experiencing poverty in the next decade. Increased food insecurity and poverty could leave millions of rural, base of the pyramid men and women without adequate daily nutrition, which will make them less resilient against other changes in their lives.

Most governments in the region have spent heavily on stimulus and rescue packages designed to help their citizens and avoid economic collapse. Many businesses, to protect themselves and their employees, have been forced to adjust operations and strategies in response to the pandemic's new normal. The economies in the region are expected to rebound after the COVID-19 vaccine arrives in 2021, but it could be a long and slow recovery, impacting many businesses and investment opportunities.

ACTIVITIES

The S/SEA RIH aims to meet these challenges by supporting the scaling-up of climate-friendly and environmentally sustainable energy and/or water-efficient innovations in the water-energy-food (WE4F) nexus across the region, with a focus on women and the poor. Innovations include technologies, business and finance models ,and new modes of cooperation. Based in Bangkok, Thailand, the RIH supports innovators in 16 countries: Afghanistan, Bangladesh, Bhutan, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Philippines, Singapore, Sri Lanka, Thailand, Timor-Leste, and Vietnam.

PRIVATE SECTOR ENGAGEMENT

To facilitate WE4F's objectives, the RIH will engage in continuous, active outreach with private-sector stakeholders. Private-sector engagement is critical not only for securing investment for WE4F innovators, but also for informing the work of the RIH's Enabling Environment Unit and Technical Assistance Unit when delivering key value-added services and building subject matter expertise in the WEF nexus.

A major goal of the RIH platform is positioning innovators for investment from private-debt or equity-capital providers. Through processes such us the CFI, identifying legacy innovators, and ad-hoc onboarding of other innovators, the RIH will develop a portfolio of 40+ innovators. The majority will be private companies scaling across S/SEA region and beyond, though some may be not-for-profit entities wishing to launch a commercial endeavor from an existing activity to generate sustainable funding. In such cases, these new entities may receive early support through TA, grants, or investor introductions where feasible. Apart from the innovators, the RIH will also continue to expand its network of companies, trade associations, industry associations, and other platforms across the targeted value chains to identify opportunities for collaboration and cooperation. The hub is open to supporting not-for-profits who can showcase a clear plan to make their model financially sustainable and achieve independence in the future.

Through TA, the RIH aims to work with such not-for-profit organizations to help them test and operationalize models that will be self-sustaining and either transition successfully to the communities, transition to another private sector partner, or even scale through government projects.

Providing bespoke and customized TA to WE4F innovators is one of the key areas of interventions by the RIH. The process starts via a holistic needs assessment survey conducted with each innovator. Based on the analysis, the TA scopes are decided and delivered by the RIH either via

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in-house technical experts or, in some cases, pre-vetted external vendors. The S/SEA RIH conducted needs assessment for eight legacy innovators – four each from SWFF and PAEGC– in the October-December 2020 period. While some of these innovators are looking for TA related to improving their business processes and metrics, others are being supported to devise expansion models in new geographies. Additionally, the RIH is also supporting very specific needs of innovators, such as analyzing the impact of legal regulations and laws on the business of an innovator in a particular country. This showcases the commitment of the RIH to keep the innovator's needs as the central operating principle. The RIH is committed to supporting new innovators with a similar approach. A prospective list of TA types with which the hub is able to support innovators is given in Annex VI.

Investment allows innovators to achieve commercial scale and social and environmental impact at a faster pace and to a greater magnitude than would be possible using RIH resources alone. A critical component of establishing investor relationships and facilitating successfully closed deals, is the creation and curation of S/SEA RIH connections with investors that have mandates overlapping with WE4F objectives. The Brokering Unit has engaged a significant number of private investors in the region that share this overlap.

Additionally, the Brokering Unit is growing and refining its investor network to prepare for investment facilitation in the coming months and years. While screening and assessing the first cohort of organizations sourced from the CFI, unit personnel found that the SWFF and PAEGC innovators understand the importance of allocating their own resources and, in some cases, capital towards expansion plans. With incentives aligned between innovators and investors to support successful expansion, the stage is set for strong, seamless partnerships once an investment is made – which will likely lead to strong impact outcomes.

INNOVATORS

CALL FOR INNOVATIONS

In Quarter 4 of Year 1, the first S/SEA CFI was released to select the first cohort of innovators. Through the first CFI, the S/SEA RIH aims to select 15 to 20 innovators to receive support and increase their impact in the water-energy-food nexus. Through this competitive call for innovations, the S/SEA RIH aims to disburse approximately $4 million in award funding for a cohort of 25 innovators. Individual awards for innovators are expected to range from $25,000 to $500,000, depending on the type of funding requested.

Therefore, the call for innovations encourages organizations that meet the following criteria to apply:

- Have a financially sustainable business model (private companies and teams within non-profit or academic organizations that maintain their own budget and are responsible for revenue generation);
- Address water-energy-food nexus challenges
- Have a well-defined plan for expansion, with a focus on accessing outside investment;
- Understand the local enabling environment for technology and business innovations;
- Demonstrate direct or strong indirect benefits for base of pyramid end-users;
- Show how their innovation benefits women;
- Have a basic understanding of ESG issues and showcase strong commitment to integration into business model and product or service offering.

Innovators must operate in at least one of the following target countries: Afghanistan, Bangladesh, Bhutan, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Philippines, Singapore, Sri Lanka, Thailand, Timor Leste, and Vietnam.

During November and December 2020, the RIH received and evaluated concept notes. After the concept note process, there was a full application process to review the short-listed candidates.

In total, 125 prospective innovators submitted concept notes and 35 were short-listed as semifinalists for full application submission. These short-listed applicants submitted full applications in December 2020 and January 2021. One semifinalist dropped out during the process. Among the remaining 34 applications:

- 13 of them have more than 50 percent of women in company senior management and cofounder teams;
- Six of them have more than 50 percent of women participation in their overall workforce;
- 16 of them are water-related technologies;
- 15 innovations are energy-related technologies;
- Three of them are digital solutions, with the combination of either water-, energy-, or food-related innovation;
- The candidates mainly came from India (15), Bangladesh (4), Cambodia (3) and Indonesia (3).

During the first quarter of Year 2, full applications were reviewed by RIH team members and external RAB members.

ONBOARDING OF SWFF, PAEGC, AND ASIA EDGE AG-ENERGY PRIZE INNOVATORS

The RIH onboarded a total of 12 innovators from SWFF, PAEGC and the Asia EDGE Ag-Energy Prize. There were four innovators from SWFF (Adaptive Symbiotic Technologies (AST), Lal Teer Seeds, aQysta, MimosaTEK,), four from PAEGC (Village Infrastructure Angels (VIA), Claro Energy, Husk Power Systems, Promethean Power Systems), and four from the Asia EDGE Ag-Energy Prize (Agrosolar, RecyGlo, ATEC Biodigesters International, Gham Power). These innovators were chosen for their potential scale during predecessor programs or for participation and success in the Asia EDGE Ag-Energy Prize. Through kickoff calls and follow-up discussions in the last quarter of Year 1, the RIH worked with each innovator to develop an AWP and Scopes of Work (SOW). The documents outline innovators' goals for the next year, TA needs, and opportunities for the RIH to meet those needs. The RIH TA Unit began providing TA to these innovators in the first quarter of 2021.

A complete list of innovators, their locations, and a short summary can be found in Annex V.

AD-HOC INNOVATORS

The S/SEA RIH will look to onboard innovators that show potential for aligning with WE4F objectives through ad-hoc additions to the program. These innovators would receive technical assistance, investment facilitation, and other mentoring or connections to the RIH's network. They would not be eligible for grants. One of the methods for identifying ad-hoc innovators is through the S/SEA Brokering Unit. The unit regularly receives recommendations from private sector partners who suggest companies in their networks or pipelines. Such innovators would be engaged through a process that includes an introductory call and diagnostic needs survey. Afterward, the RIH would share with the RAB written justification for inclusion in the program.

CAPACITY DEVELOPMENT

The first year of S/SEA RIH activity was focused on onboarding SWFF, PAEGC, and Asia EDGE Ag-Energy Prize innovators. While co-designing acceleration work plans and SOWs, S/SEA RIH staff and innovators identified capacity development activities to conduct in Year 2. Year 2 capacity building for legacy innovators will include business model reviews, market expansion framework development, gender integration, and other activities as deemed necessary. Through these activities, the RIH will improve innovators' capacities to conduct similar activities by themselves in the forthcoming years. For innovators onboarded through the first CFI, a boot camp will be organized; future

capacity development scopes will be identified at the boot camp and through subsequent needs assessment.

Following are the technical assistance support services that are being provided to the legacy innovators starting February 2021:

Innovator	TA	Notes
Adaptive Symbiotic Technologies (AST)	Understanding impact of the new law India has passed on bio-stimulants in 2020 on commercializing BioEnsure®.	
Lal Teer Seeds	Supporting investment facilitation to expand markets in Bangladesh.	Not yet confirmed.
aQysta	Review business and impact matrices, and investment facilitation.	
MimosaTEK:	Solidifying a new business model assessment for MimosaTEK's intermediary model.	
Village Infrastructure Angels (VIA)	Investment facilitation	Scope yet to be confirmed.
Claro Energy	Develop international expansion framework.	
Husk Power Systems	Value chain partner mapping for new intermediary model and investment facilitation.	
Promethean Power Systems	Review learnings from new B2F2B (Business to Farmer to Business) model to develop scale up strategy and investment facilitation.	
Agrosolar	Gender integration strategy for the organization.	
RecyGlo	Review current business model and country implementation strategy.	Now postponed due to situation in Myanmar.
ATEC Biodigesters International	Developing customer acquisition strategy for Bangladesh.	
Gham Power	Facilitating linkage with solar pump stakeholders in Bangladesh for future expansion planning.	

COMMUNICATIONS AND KNOWLEDGE MANAGEMENT (CKM)

The team educates donors, interested stakeholders, and the public about the program and provides information about nexus challenges, solutions, and opportunities. KM captures and documents success stories, lessons learned, insights, challenges, and best practices. The team also manages data generated by the RIH to support effective learning.

During the 2020 CFI, the S/SEA RIH communicated with more than 100 contacts in the RIH's partnership list and 14 Facebook and LinkedIn groups, generating 126,185 impressions. The RIH also used WE4F social media channels and a website to promote the CFI and connect with potential applicants. The S/SEA CFI webpage had 3,542 unique viewers and 772 click-throughs to the application portal. The top traffic locations for the page and application portal link were India, Myanmar, and the United States. Due to a slow start for outreach, the S/SEA RIH purchased two social media ads – one on Facebook and one on LinkedIn.

The Secretariat team provided additional support by developing an outreach database composed of more than 570 contacts located throughout South and Southeast Asia. By directly emailing these contacts, the S/SEA RIH and the Secretariat Unit were able to bring in more applicants and increase regional knowledge of the program.

Call for Innovations Social Media Analytics for S/SEA RIH

Channel	# of Posts	Impressions	Clicks	Shares	Likes
Facebook	31	1148	8	4	19
Facebook Ad	1	75087	2665	3	84
Twitter	20	3866	15	7	22
LinkedIn	30	1359	54	29	39
LinkedIn Ad	1	17581	46	N/A	N/A
YouTube	1	843	365	4	5

The S/SEA RIH held two Q&A webinars to support the concept note and proposal submission process. During the concept note stage, 101 people registered and 33 attended the session. A recording of the webinar and the Q&A document were made accessible on the WE4F website and YouTube channel. The second webinar targeted only semifinalists; 32 organizations of 35 (91 percent) registered for the session, with 20 of the organizations attending. After the second webinar ended, a recording was sent to applicants.

ADVOCACY & ENABLING ENVIRONMENTS

Specific policies and regulations differ from country to country. It can be challenging for innovators and investors to understand and unlock policies and regulations to scale their innovations. Based on the initial discussion with legacy innovators and initial reviews of the new applications under the new WE4F CFI, most of the innovators need help to clarify and navigate the local policies and regulations that hinder innovator growth by limiting end-user (especially BOP) access and adoption of innovative

technologies. Innovators also expressed that country policies are not aligned with the WEF nexus elements and most of the program countries are adopting new policy on the nexus; therefore, both legacy and new innovators express the need to update on the countries' existing policies.

To support innovators and investors, the S/SEA EEU began mapping existing policy and regulatory environments of select RIH countries. This included a desktop review and analysis of nexus enabling environments and key regulatory barriers to innovator growth. So far, the EEU has completed an initial mapping process for Myanmar, India, and Indonesia and prepared a draft report for discussion. Similar exercises will follow for Nepal, Vietnam, Thailand, and Bangladesh, then the remaining S/SEA RIH countries. The initial policy mapping dentified that the bureaucracy and administrative burdens are the bigger challenges to innovators to start and expand their businesses in the program's country. Improved access to finances and markets-related policies is not helpful to the innovators who are promoting WEF Nexus social innovation in their home countries or in the program's expansion counties. Some of the key barriers affecting innovators include business registration, standards setting and quality control, customs, technology transfer, licensing, and regulation transparency. Policy barriers that affect end-users include finance requirements or regulations, land titling procedures, government incentives, and local water access and rights.

The EE mapping document serves as a guiding document on policy and regulation issues when the RIH team interacts with innovators. It helps innovators and investors understand and address S/SE Asia policy and regulatory barriers at the local, regional, and national levels that could impede innovator growth and end-user access to innovations. In 2021, all Country Coordinators will be well-positioned in the program's countries (India, Thailand, Vietnam, Myanmar, and Indonesia). They play active roles in carrying out the EE mapping. They will also collaborate closely with EEU and facilitate the relationship among innovators and relevant policy actors in the country to implement the enabling environment activities and interaction with local stakeholders.

As a part of TA facilitation, the EEU will conduct surveys with legacy and new innovators to assess the need for improvement in the WEF nexus enabling environments. As a result of TA facilitation, the innovators will be able to invest or leverage greater resources in reaching more clients, expanding their market growth, and having a greater potential to scale and remain sustainable.

PARTNERSHIPS

In line with WE4F's Partnerships Strategy, the RIH will target and engage four types of potential partners starting in Year 2: Steering Committee, Investment, Ecosystem/Value Chain, and Policy Level Partners. Working with such partners


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would leverage expertise and advance core interests to the benefit of innovators.

For example, the RIH will use its existing connection to the Steering Committee to identify any overlapping areas of work with GIZ, MFA-NL, Sida, and USAID missions and programs in the region and share lessons learned. Regarding investment partners, the cultivation of such relationships aligns with the RIH's key objective, to position innovators for private-debt or equity-capital investment. This requires a strong network of investors whose mandates could allow them to serve as innovator growth partners.

The RIH met with SELCO Foundation, an India-based non-profit organization that works on testing innovative energy product and service delivery business models to benefit rural populations. The RIH identified synergies in similar areas of work related to WE4F technology and BOP. This led to a SELCO Foundation team member being included in the S/SEA RIH RAB.

In 2020, the Brokering Unit developed a network of 104 relevant investors. The team held several dozen detailed conversations with investment officers about WE4F's objectives and the role private capital can play. In 2021, the Brokering Unit will expand this Rolodex of potential growth partners, as it brings investable deals to investors for assessment. The team anticipates adding another 20 to 30 investors to the list.

Regarding Ecosystem/Value Chain partners, the RIH looks to identify and work with organizations that can help accelerate business-to-business linkages, improve distribution, and support tailoring and stimulating innovations' adoption. Examples of such partners include industry associations, relevant wholesalers and distributors, incubators, and accelerators. Such partners will also be key in sourcing relevant innovators to onboard into the program.

Regarding policy-level partners, the RIH aims to liaise with national and regional entities involved in WEF nexus-relevant policy and regulation discussions, including but not limited to industry associations, regulatory bodies, agencies and ministries, and relevant donor programs that focus on enabling environments. Such partnerships will be designed to help nexus innovators scale their businesses and impact.


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IMPACT

S/SEA RIH EXPECTED OUTCOMES AND IMPACTS

The S/SE Asia RIH's MEL approach to capturing results, as addressed in the RIH's Theory of Change and Results Framework, is rooted in the WE4F ToC and Results Framework. To strengthen innovators and provide capacity building opportunities for them in M&E-related topics, the RIH created a manual entitled Understanding WE4F M&E Requirements. The manual outlines all relevant MEL processes and guidelines for innovators.

- Support innovators in reaching a minimum of 1 million smallholder farmers and other end users, including 250,000 women.
- Identify and fund at least 40 WE4F innovators across the region.

Enhance the enabling environment for WE4F innovations through advocacy and capacity building activities

Work with innovations that reach 100,000 BOP end-users, including women and other individuals, whose gross annual income has increased by at least 10 %

Fifteen percent of S/SE Asia food producers using WE4F innovator products or services to increase food production by at least 20%

Help farmers increase food production while increasing water and energy efficiency

6,900 tons of CO2e saved as a result of using WE4F innovations

15,000 WE4F innovation end users emitting 12.5 percent less GHG per food unit along the entire value chain

Increase investment to innovators by at least $20 million

Deliver at least 90 instances of technical assistance

RISKS, CHALLENGES, AND LESSONS LEARNED

ASSESSMENT OF RISKS

Risk assessment is a key activity in the S/SEA RIH, because the hub often has to pivot to address technical and financial risks that change over time. In Year 1 of WE4F, the RIH outlined the political and social, operational, and investment risks that could affect the program during implementation. Indeed, COVID-19 impacted the team's ability to engage with innovators in countries where the consortium had a limited presence. It also prevented the team from hiring for all positions, because potential candidates did not want to leave the safety of their current positions to take on a new role. As a result, the RIH shifted some activities to Y2. The full risk assessment table is available in Annex IV.

Some examples of WEF nexus risks and corresponding potential interventions are provided below:

Risk factor	Mitigating WE4F innovation
Exogenous environmental factors	Sensors or other tech-enabled, hands-on interventions allow optimal use of water, fertilizer and seeds; frequent, tech-enabled monitoring allows input adjustment with a shorter feedback loop
Absent or insufficient enabling infrastructure	By aggregating end-users' output and providing reliable logistics, innovator removes the threat of inadequate physical connectivity or storage
Disaggregated and unsophisticated producers	Collecting dispersed, uncoordinated producers into a supplier group governed by a robust contract and with pricing incentives to abandon side-selling helps add structure to local markets
Underdeveloped market systems	By creating an end-to-end market for smallholders, the innovator overcomes disconnects inherent to fractured or deficient market systems

CHALLENGES ENCOUNTERED

Fully staffing the RIH was this team's main challenge during Year 1. Well-qualified candidates were reluctant to leave permanent positions due to uncertainties caused by COVID-19. Some aspects of the contract made hub positions unattractive. For example, the one-year base employment period is subject to annual approval, and funds are not allocated to regional candidates to help them move to Thailand because the donors wanted to primarily hire local candidates or have regional staff work remotely. In some cases, positions require a niche skill set not found in a market's typical candidate pool. The RIH put in place several measures to accelerate recruiting and hiring. In spite of the challenges, by the end of 2020, 14 of the 16 full-time positions had been filled. The pandemic also kept two key personnel from moving to Bangkok in Year 1. The RIH quickly pivoted, using tools such as Microsoft Teams to onboard and collaborate with new staff.

The delay in fully staffing the RIH impacted its ability to design and deploy technical assistance for legacy innovators from SWFF and PAEGC. Although the RIH began engaging innovators and creating initial acceleration work plans in October, at the end of Year 1, technical assistance had not yet begun. The RIH will begin delivering technical assistance in Quarter 1 of Year 2.

Plans for networking and building relationships with stakeholders in the region were negatively impacted by the delay in RIH staffing. In Year 2, the RIH plans to engage and build relationships with key stakeholders.

As a rule, pre-award site visits need to occur before grants are administered as a part of due-diligence for innovator selection. In 2020, owing to COVID-19 restrictions, site visits and in-person consultations with innovators did not occur. Instead, the RIH used videoconference tools to engage innovators and collect necessary data to design TA assignments.

LESSONS LEARNED

CALL FOR INNOVATIONS

Reaching strong applicants is difficult. The RIH encountered challenges during implementation of its first regional CFI. The final number of applications was lower than the expected target and prospective innovators were clustered in a few of the 16 countries. Compared to the number of applications received for the idea-stage or early-stage innovations, the number of SMEs that are mid- to late-stage and have sustainable financial business models are much more limited.

Lack of WE4F presence and network in certain countries. Some countries had very low user rates on the RIH and CFI webpages. Specifically, Afghanistan, Bhutan, Laos, and Timor-Leste all had visitor rates in the single digits for the hub webpage and under 50 views per country for the CFI webpage. In addition, these same countries, along with the Philippines, were noticeably absent in the CFI application demographics. Without the full RIH staff when the CFI was launched, the main outreach strategy was to leverage the network of existing partners in the region and share the CFI through WE4F's channels. So, in countries that the RIH had networks, the visibility of the call was lower. The outreach was expanded after the CKM Specialist joined the RIH in early December and focused on specific target groups such as accelerators and other innovator networks. However, the two-week time frame prior to the close date of application was too short for intensified promotion of the CFI.

Need for diverse communications channels. In the next CFI, the RIH aims to start targeted outreach to accelerators and innovator-facing organizations earlier in the outreach process. The RIH will also explore using additional online media channels to generate interest among the target audience. Additionally, in countries without a strong water-energy-food nexus ecosystem, the RIH will undertake more targeted one-on-one outreach to encourage innovators to apply.

Unfamiliarity with CFI process. Another major lesson learned from the CFI is related to the questions asked during Q&A webinar sessions. Many questions from the innovators were focused on financial expectations and matching funds. The RIH aims to provide more guidance on these aspects in the next CFI's materials. Content will also be produced in local languages.

TECHNICAL ASSISTANCE FOR LEGACY INNOVATORS

Need for improved internal structures. The third lesson learned is related to the slow deployment of TA for SWFF and PAEGC legacy innovators. The RIH should have ensured that it had all processes, institutional arrangements, and staff in place before engaging innovators to avoid lapses between first contact and eventual rollout of TA. The RIH will begin delivering TA in the first

quarter of Year 2. Further details are discussed in the Looking Forward section.

RECOMMENDATIONS FOR PRIORITY DIALOGUE AND POLICY

The initial RIH EEU's country profile exercise clearly shows there is room for improvement in many regional policies and regulatory areas to more effectively address water-energy-food nexus issues. In most cases, innovators do not benefit from existing policies and frameworks. To communicate to others in the region what WE4F innovators are facing on the ground, the EEU will participate actively in national and regional policy dialogues. The EEU will facilitate the stakeholder dialogues and improve public awareness to increase WEF investments, including using embedded incentives and financial support to promote innovation adoption. Based on the specific needs of Innovators, the EEU shall organize relevant knowledge platforms, foster multi-stakeholder dialogue at all levels, including the private sector, and prioritize stakeholder capacity development in related WEF sectors.

Key expected 2021 deliverables:

- **Organize at least four major events, including roundtables, conferences, and meetings with relevant WEF regional stakeholders; conduct a regional policy roundtable;**
- **Support at least five innovators in their efforts to address policy and regulatory issues that hinder business growth, commercialization, and scaling up of their innovations in the region; and**
- **Help at least five innovators improve innovation marketing and outreach, providing equal access to both male and female customers—particularly within the BOP.**


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LOOKING FORWARD

Regardless of challenges from 2020, the S/SEA RIH remains committed to its objective of supporting water-energy-food nexus companies in scaling to impact target populations in the region. Within the first three months of the new year, all remaining positions will be filled with qualified candidates from the region, while maintaining our successfully gender-balanced team.

In 2021, the RIH aims to rapidly increase the number of innovators engaged. By the end of the year, the goal is to begin supporting at least 20 innovators from previous programs and through the CFI. This constitutes 50 percent of the committed target within the first year of full operation.

The S/SEA RIH will support innovators through technical assistance, ESG assistance, and investment facilitation and work toward $1 million or more in grants supporting WE4F innovators. The S/SEA RIH will also engage with other regional organizations to initiate partnerships that could benefit WE4F innovators. Potential partners range from MNCs and impact investors to MBDs, NGOs, and academic organizations. To support the goal of promoting WE4F innovations that are accessible and affordable for low-income populations, the RIH will conduct BOP market segment assessments. The RIH Investment Facilitation Unit is also creating a portfolio of investors that have a similar vision to improve BOP life and livelihoods.

Drawing on lessons learned from the previous CFI, the RIH will modify its CFI approach and strategy with content in local languages. The staff will also explore additional online outreach channels to advertise the second CFI, which tentatively will launch by quarter three of 2021. While preparing to scale up its operation and impact, RIH staff will work closely with the Secretariat to ensure alignment of the innovator onboarding process, structure of the SOW, criteria to accept ad hoc innovators, and country-specific policy background materials.


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10 WEST AFRICA

INTRODUCTION

West Africa offers great potential to support sustainable water- and energy-efficient innovations and agribusiness approaches. The region benefits from a young and dynamic population eager to showcase its entrepreneurial innovation capacity. In a regional context often marked by conflict and climate stress, it is crucial to harness this potential to ensure food security, job creation, and climate adaptation. Action must be taken now, as climate change threatens to exacerbate current WEF nexus challenges.

The region has been identified by the Intergovernmental Panel on Climate Change (IIPC) as one of the areas most vulnerable to climate change. Extreme weather events are expected to increase, along with rises in temperature and sea level, uncertain precipitation trends, heavy rains, extreme droughts, deforestation, and soil and coastal erosion. These developments will have dramatic impacts, not only on ecosystems, water resources, and agriculture but also on infrastructure and human health if effective measures are delayed.


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By 2100, West Africa´s population is expected to grow by nearly 90 percent, which will further increase the demand for food and put more pressure on natural resources. Of all exports from the Economic Community of West African States (ECOWAS), 75 percent are fuels from extractive industries, while cocoa and food products account for just 5 percent of its exports. Ivory Coast, where the WE4F Regional Innovation Hub (RIH) is based, is the world's largest producer and exporter of cocoa beans, with 40 percent of the world's yield.

The West African region has a great potential for sustainable energy innovations: wind energy in coastal areas (Senegal, Nigeria, and Ghana), small-scale hydropower in the south (Ivory Coast, Ghana, and Togo), solar energy in the north (Niger, Mali, Burkina Faso, northern parts of Ghana and Nigeria), and biomass resources well-distributed across the region.

Energy and water are at the center of sustainable development. There is a need for climate-friendly, water- and energy-efficient technologies that enable innovation to produce more with less. West Africa therefore seeks to strengthen its resilience and adaptive capacity in the agricultural water and energy sectors. The private sector is a key player in these developments – in particular, local SMEs that develop and distribute innovations tailored to local needs. WE4F will support these SMEs and offer them the opportunity to scale up their businesses and develop their entrepreneurial capacity while having a positive impact on local communities by improving sustainable food security.

EXPECTED IMPACT AND OUTCOMES

- 35,000 smallholder farms (30% of which are women-led) have intro-duced climate-friendly, energy- and/or water-efficient innovations prop-agated by innovators (1 of which uses digital solutions).
- 1,500 multipliers (40% of whom are women) from sector or value chain organizations, technology insfitutes/technical schools, advisory services, support institutions, etc. are informed about the potential of climate-friendly, energy- and/or water-efficient innovations within the framework of capacity development measures.
- 6 demo measures that show end users and multipliers the potential of climate-friendly, energy- and/or water-efficient innovations for productivity and income increases have respectively been carried out in three countries of the hub region.
- 4 partner organizations or companies presented their experiences with innovative approaches at specialist events at regional, interregional and global level.
- 1 Strategy, guideline or project of international, regional or local organizations disseminates the climate-friendly, energy and/or water-efficient innovations supported by the project.
- 2 exchange formats to design conducive framework conditions for the dissemination innovations..

2 funded innovators market innovations with sales increases of 20% on average compared to before funding

1 newly developed or adapted financing mechanisms, which consider the specific needs of the target groups, are available to end-users of innovations

15 processing companies introduced climate-friendly, energy- and/or water-efficient innovations

1 instrument for the dissemination of climate-friendly, energy- and/or water-eticient innovations is operational

4 business models that impact CO2 or energy/water conservation developed by new or already established innovators

1 measure to improve the framework conditions introduced to the relevant decision-making bodies

Raised total of USD 2 million in additional funding

2 innovators have established sales structures in a different country of the region

2020 ACTIVITIES

The WA RIH empowers selected innovators by strengthening their management and business skills through trainings, which supports them in scaling innovations. The hub supports additional companies through public-private partnerships that encourage them to adopt more sustainable processes. To facilitate access to innovations, the WA RIH works to improve suitable financing options by developing new financial instruments and training financial actors both for companies and for end-users. The RIH's regional coverage includes Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, Niger, Nigeria, Senegal, and Togo.

For end-users and multipliers, the West Africa RIH organizes trainings that cover different aspects of resource-efficient agriculture and food processing, in addition to setting up pilot projects and demonstration sites to showcase technological innovations.

To ensure an enabling environment for innovative solutions and help the innovators upscale, the RIH works on improving political and sectoral conditions by consulting on policymaking processes in the region. Further, the team shares lessons learned and organizes events to help strengthen regional and global exchanges on interlinkages of water, energy, and food.

While the West Africa RIH experienced delays due to the COVID-19 pandemic, the hub was able to become fully operational and expects tangible results within the first quarter of 2021. The hub conducts activities in four countries (Senegal, Ivory Coast, Niger, and Benin) and entered into 10 partnerships in 2020 with a variety of companies, NGOs, and government institutions. Nine public-private partnerships are planned, of which three are being finalized for signature. One demonstration project is already active in Niger and focuses exclusively on female entrepreneurship. WA RIH is also planning demonstration measures and capacity building activities on renewable energy innovations and water - and energy-efficiency measures in the agricultural production and processing sector. One contract in Senegal involves energy efficiency measures in rice-processing facilities. In addition, the WA RIH is also preparing for the regional and Ivorian Call for Innovations.

PRIVATE SECTOR ENGAGEMENT

INNOVATORS

The WA RIH is in the process of recruiting an implementation partner for the regional call. The regional call for innovations will take place in the second quarter of 2021 and will result in the selection of as many as 15 innovators within the region.

In addition, a national CFI will take place to select three innovators based in Côte d'Ivoire. The contract documents for the Ivorian CFI have been finalized, with both the selection process and guidelines defined and management platform for the call developed. The WA RIH will utilize the GIZ-managed Leverist platform, a free online platform that facilitates collaboration between the private sector and development cooperation. The national CFI will run between March and August 2021, presenting an opportunity to pilot the CFI process.

PILOTING & DISSEMINATING WEF INNOVATIONS

Four pilot projects have been set up or kick-started and an iDPP contract has been prepared for signature at the beginning of 2021.

- **Niger:** WA RIH is implementing a demonstration project involving a solar-powered irrigation system to increase the vegetable production of a women farmers' cooperative that has 200 women entrepreneurs. Activities will focus on vegetable and fruit production and be accompanied by capacity building measures. So far, a baseline study has been conducted; the projected impact

includes 200 women as direct beneficiaries, 1,000 people as indirect beneficiaries, and the training of 5,000 smallholder farmers. The installation of the pump will allow the women to irrigate their fields year-round which will enable a second planting season and increase their yields and subsequently their income as they produce more surplus.

- **Benin and Senegal:** In partnership with the NGO Energy for Impact (E4I), the WA RIH is implementing demonstration activities and leveraging financing for renewable energy in the rice value chain. The work is geared toward enabling smallholder farmers and processors to access financing. The partnership will install solar irrigation kits and solar huskers and mills and prepare farmer groups to submit loan applications to the monetary financial institutions (MFIs). A preselection of eight MFIs or banks active in the rice sector has already taken place. The expected impact of the action is to give access to solar-based technologies to 1,000 farmers in the rice sector in Benin and another 1,000 in Senegal.

- **Senegal:** WA RIH is working with rice producers in the Senegal River Valley to increase energy efficiency and access to international climate financing for rice production. Implementation is done in cooperation with the Global Green Growth Institute (GGGI). The expected impact of this action is to increase energy efficiency of rice production by 40 percent, reduce greenhouse gases for four rice producers by 40 percent and attract financing between $2 million and $20 million for additional green measures.

- **Ivory Coast:** An iDPP is being prepared and will be ready for signature by the beginning of next year. The partnership will include a collaboration with CGIAR's Africa Rice Center (AfricaRice). The WA RIH is also setting up a

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demonstration project with a South African biogas company, ibert, in West Africa. The goal is to demonstrate the innovative uses of rice husks and cacao shells for energy generation and reuse in food processing efforts.

- A contract for a study on the financial environment in the Ivorian agri-food sector has been signed. By the latter half of 2021, the RIH aims to strengthen two financial instruments offered by commercial banks for local SMEs in agribusiness.

In addition, a thematic exchange with the GIZ global project Financing Agriculture has taken place to identify business models in specific value chains (rice, mango, potato) in Mali, Burkina Faso, and Cote d'Ivoire.

ADVOCACY AND ENABLING ENVIRONMENTS

The West Africa Hub established a partnership with the regional organization ECREEE to promote and disseminate best practices and to upscale high-potential innovations in agribusiness at the WEF nexus. Two digital exchanges on framework conditions and strengthening finance in West Africa took place: An Enabling Environment for Sustainable Agribusinesses (November 18 and 19, 2020) and the ECOWAS Sustainable Energy Forum 2020, session IV on Productive Uses of Energy: Energy, Water and Food, the Winning Nexus (November 26, 2020). The RIH's partnership with ECREEE sets a basis for the development and implementation of ongoing exchanges to raise awareness among decision makers and to anchor relevant innovations in regional policies, strategies, and programs.

The RIH has reached 1,000 participants through a virtual presentation on the WEF nexus at an ECOWAS conference. The virtual session brought together key stakeholders and actors from different regional and global organizations. The session aimed at promoting a more enabling environment for the upscaling of climate friendly, energy- and water-efficient innovations.

Additionally, the RIH signed a Memorandum of Understanding (MOU) with the regional organization, ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), which will contribute to promotion and dissemination of best practices and upscaling of high-potential innovations in agribusiness at the WEF nexus.

In the Ivory Coast, the WA RIH and the hub's main political partner, the Ministry of Agriculture and Rural Development (MINADER), planned a study touching on water-energy-food intersectoral policies. The goal is to identify policy that needs specific innovations and support the development of national policy during 2021 and 2022.

RISKS, CHALLENGES, AND LESSONS LEARNED

ASSESSMENT OF RISKS

Risk assessment is a key activity in the West Africa RIH, because the hub often has to pivot to address technical and financial risks that change over time. In Year 1 of WE4F, the RIH projected that political and implementation risks in the region could inhibit RIH activities. Indeed, COVID-19 affected the ability of the RIH to complete many Y1 activities. As a result, the RIH shifted some activities to Y2. During Y2, the CFI will be launched and the RIH will continue to monitor for new risks and changes in the existing ones. The full risk assessment table is available in Annex IV.

CHALLENGES

Over the course of 2020, the WA RIH faced the following challenges:

High importance of agriculture, but low availability of innovations. In West Africa, agriculture and the transformation of agricultural products contribute to 20 to 35 percent of GDP with about 80 percent of the population working in the sector (including in Ivory Coast, where the West Africa hub is based). Water constitutes a crucial factor for agricultural success in the region, but access to water innovations is rare. Energy access levels are among the lowest worldwide, but significant energy innovations in the agribusiness space are being made available and can provide a turning point for many businesses. Lack of access to suitable financing for innovations poses a particular obstacle to innovations' future development and dissemination. This holds true both for developing innovations to market maturity and for making them available to smallholder farming enterprises.

The WE4F program operates in a fragile political environment that currently dominates the entire West African region. Extremism, terrorism, and social unrest deeply affect development in Mali, Burkina Faso, Niger, and Nigeria. In the latter half of 2020, elections took place in Ivory Coast, Ghana, Niger, and Burkina Faso, shifting attention from development priorities and partnerships. In addition to the elections, a new government was installed in Mali. The WE4F WA RIH is learning to adapt its private-sector focus to a region in which humanitarian action is the dominant need.

Presidential elections in Ivory Coast (October 2020) slowed down hub setup in Abidjan. One month before and after the elections, interactions with partners were reduced to a minimum and all missions were cancelled due to increasing instability, insecurity, and violent manifestations


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across the country. Tensions persisted within the country almost two months after the elections and in February 2021, opposition representatives of the re-elected president announced their return from exile.

COVID-19 slowed down the launch of activities in the region. After a complete lockdown at the beginning of the global health crisis, air borders reopened at the beginning of July 2020, but isolation of the Abidjan region persisted until the end of July. Land borders remain closed. Projects within the region are therefore managed remotely for now (*e.g.*, in Niger, Senegal, and Benin) or implemented through other partners.

LESSONS LEARNED

As mentioned above, the RIH moves within a fragile and economically stressed environment, with hunger and political crises being common. To react to this situation, the RIH will refocus some of its resources away from the private sector to the humanitarian sector; for example, solar-powered water pumps have played an increasingly important role for refugee camps in the recent years.

A second challenge has been the relative economic weakness of SMEs in West Africa. The RIH attempted to enter into PPPs with SMEs in the region; however, private companies should cover 50 percent of the overall project budget and many smaller companies are not able to cover that much. Since many of the targeted companies experience economic conditions that make access to liquidity and investment opportunities particularly difficult, setting up iDPP that require investment on behalf of the companies has proven challenging. This situation requires solutions that move beyond cash contributions, including time invested by the companies in a joint PPP, as well as other in-kind solutions.

RECOMMENDATIONS FOR PRIORITY DIALOGUE AND POLICY

As highlighted by PAEGC, import duties, tariffs, and VAT can improve product profitability when such costs are passed on to consumers. Targeted tax exemptions or reductions can reduce products' prices.

In West Africa, many countries already grant tax exemptions for imported solar equipment; however, Ivory Coast has not yet implemented such an exemption. Going forward, WE4F will continue to promote tax exemptions for solar equipment, which will help make sustainable green energy solutions more affordable.

Additionally, in many West African countries, the knowledge level of customs officials impedes a trouble-free importation of exempt equipment. This leads to delays in import procedures for many projects and companies and makes the region more unattractive for the private sector. Another recommendation would be to support the efforts of tax exemption through capacity building and knowledge enhancement for customs officials.

The West African region is affected by a range of nutrition-related challenges from undernutrition to obesity and diet-related noncommunicable diseases. Anemia and stunting have especially negative implications for children under five[22]. Poverty and nutrition problems present some of the key challenges to economic productivity and broader development, which are possible to tackle through a comprehensive and intersectoral approach, bringing together food production, water, and sanitation.[23]

22. Global Nutrition Report. 2020. West Africa Nutrition Profile. / 23. IFPRI. 2017. IFPRI's Nutrition Research in West Africa at a Glance.


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LOOKING FORWARD

In addition to carrying out both a regional CFI and a smaller CFI in the Ivory Coast in 2021, the hub will deliver technical assistance to selected private-sector partners on biogas production, solar milk transformation, online market platforms, hydroponics, and water retention for pepper plantations. The RIH also plans to support former PAEGC innovators in Ghana with technical assistance.

In addition, the RIH will continue with solar-powered irrigation activities in Niger and explore solar technologies for the rice value chain in Benin and Senegal.

Further projects in the pipeline include hydroponics systems in Ivory Coast, biogas production from rice husks in Ivory Coast, water retention for pepper plantations in Ivory Coast, energy efficiency measures in Senegal's rice sector.

The WA RIH will also continue to help local actors build capacity and acquire knowledge about innovations, both by providing information at the demonstration sites and by providing trainings on financial access and solar-powered irrigation.

Additionally, the hub is planning a study on the financial environment for agribusiness SMEs in Ivory Coast and will collaborate with local banks to adapt financing mechanisms to innovators. The hub will also support pay-as-you-go technologies in Benin and Senegal in collaboration with the E4I. Furthermore, the team will facilitate matchmaking events between innovators and financiers and explore the potential for financing energy-efficient rice mills with the Banque Agricole in Senegal.

To promote an improved enabling environment for innovations in West Africa, the RIH is also planning a study on the existing political environment, particularly intersectoral policies related to water, energy, and food industries in Ivory Coast. The hub will address the policies identified in the study with each relevant ministry in the country. The RIH will also conduct policy exchanges and working groups with ministries whose operations touch on water, energy, and agriculture. Finally, the hub will work with its partner ECREEE to relay entrepreneurs' lessons learned and experiences to the relevant policymakers.

To disseminate the identified innovations and practices widely, the West Africa RIH will participate in regional and national events and conferences and facilitate the participation of key partners in these events. The hub will also share its established toolbox on solar-powered irrigation to francophone countries. In collaboration with universities and research institutes, the RIH plans to publish research on biogas and solar solutions. Lastly, the hub plans to develop and release video materials promoting and reporting on activities and innovators and will use the materials in program communications.

11 WE4F LOOKS FORWARD

In the upcoming program year, WE4F aims to apply its gained insights and continue pursuing program goals set forth in the Project Activity Document, the joint Secretariat Workplans, and the Regional Innovation Hub Work Plans as previously noted in the RIH sections above. WE4F global activities in 2021 will include the following:

Ongoing implementation of the WE4F Partnership Strategy and development of national, regional, and global partnerships is expected to lead to transformational impact and systemic change. The program will continue discussions with prospective partners to explore synergies and areas of collaboration across the four major categories: Steering Committee, Investment, Ecosystem/Value Chain Support, and Policy Level. The goal is to establish agreements and MOUs with the most promising partners. Most importantly, WE4F is actively seeking partners from developing countries and emerging economies to provide strategic and political guidance and contribute funding to the program to establish new hubs or fund current hubs.

WE4F will continue to explore ways and means to ensure better access to financing for end-users of innovations. Given that the previous projects already conducted thorough studies on innovators' access to finance (supply side), future analyses will focus on the challenges encountered by farmers' and agribusinesses (demand side) to access customized financing and the existing mechanisms (*e.g.*, funds, guarantees) to support local financial institutions to better meet the needs of these specific target groups.

Led by Sida, the creation of an innovative blended-finance vehicle/guarantee mechanism available for WE4F innovators through a global public-private partnership. The guarantee mechanism would fund first loss tranches of underlying funds and address systemic challenges hindering financing opportunities for WE4F innovators. End-users in developing countries and emerging economies often struggle to afford innovative technologies and are barred from accessing more productive and efficient tools. WE4F will continue helping local financial institutions understand smallholder farmers' needs and requirements to improve the farmers' access to finance and loans. WE4F expects a first financing mechanism to be available on the market within the second year.

The Southern/Central Africa RIH will provide regional services similar to those offered by the established RIHs. The WE4F Steering Committee envisions that the new RIH will be headquartered in South Africa and implement RIH activities in the following countries (subject to change): Chad, the Central African Republic, the Democratic Republic of the Congo, Angola, Zambia, Mozambique, Namibia, Zimbabwe, Botswana, South Africa, Eswatini, and Lesotho. The RIH will be built on lessons learned from set-up of the MENA and S/SEA RIHs.

This new hub will: (1) provide direct grants and manage the milestone-based grants and other financing provided to WE4F innovators in the region; (2) provide technical assistance and business advisory services to WE4F innovators in the region; (3) facilitate investment for innovators, including through investor matchmaking and guarantee instruments; (4) provide trainings and other technical assistance for governments, investors, lenders, and other regional actors; (5) (in coordination and consultation with the WE4F Secretariat) engage in advocacy activities; and (6) conduct MEL activities with WE4F innovators and other regional actors to share best practices, lessons learned, pivots, failures, and successes. The RIH will work in coordination with the innovators, WE4F Donor Partners, and other parties that directly support WE4F.

WE4F will invest in opportunities to have a close look into future nexus policies.
The term nexus is increasingly used to describe the link between different sectors. In policy circles, nexus stands to represent holistic approaches that ensure cooperation across sectors (beyond sectoral silos) and implement integrated and holistic approaches. At the same

time, different donors have different technical, institutionals and policies setting. Starting a discussion about future and efficient holistic donor strategies and implementation concepts will be a focus on a Steering Committee level.

WE4F will host its first annual convening in or around November 2021. The event may be virtual, in-person (potentially hosted by the East Africa RIH in Nairobi, Kenya) or organized as a hybrid of in-person and virtual events in which the Steering Committee, RIHs, Secretariat Unit, and WE4F innovators convene to exchange lessons learned and promote internal collaboration.

WE4F will participate in relevant global events. The program expects to participate in and organize WE4F Sessions at the United Nations Food Systems Summit in September 2021, World Water Week in August 2021, and the Dubai Expo


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from October 2021 to March 2022. These global events will be an opportunity to present information about and promote WE4F as a global program that focuses on local sustainability. The program will also dive deep into both completed and planned RIH activities. To prepare for the 2022 calendar year, the Secretariat will draft a list of relevant global events WE4F can participate in and will then present the list at the WE4F Annual Convening. The RIHs will also prepare a list of relevant regional events they expect to participate in during the upcoming year.

The continued analysis of the COVID-19 pandemic. The program will continue to regularly analyze the situation at both the regional level and the global level. Program staff are ready to follow a "learn and pivot" approach as the situation demands.

ANNEX

ANNEX I

SWFF AND PAEGC EXTERNAL EVALUATION RECOMMENDATIONS FOR WE4F AND RESPONSE ACTIVITIES

External Evaluation Recommendation	WE4F Planned Actions
Calls for Innovation	
If WE4F wishes to continue to support the development of novel solutions, especially by universities, the partners should insist on innovators providing a realistic avenue by which their solution will eventually come to market and be broadly disseminated. Innovations that did not have a solid path towards the market have not been broadly disseminated and do not appear likely to be so.	• Based on SWFF and PAEGC lessons learned, WE4F will consider universities, but only as a resource for research (to answer data questions as needed) and not as potential innovators
All innovation proposals should include a detailed, credible plan for bringing the product to market and ensuring that it can eventually be sold at a profit. Proposals should demonstrate a working knowledge of the local regulatory environment as well as the local target market.	• Proposal criteria were included in the Donor Advisory Guidelines - Calls for Innovations and is addressed in the selection criteria as well
WE4F should follow the portfolio of awardees to understand how shifts in the business model (and registration status) are changing the willingness to or emphasis on reaching the poor and marginalized.	• When evaluating innovations, certain questions should be considered (i.e., have innovations been adapted to local conditions? are they financially accessible to the poor?) • WE4F External evaluator will also examine WE4F's success in addressing BOP customer needs
Enabling Environment	
Renewable technologies are new and unfamiliar to most potential beneficiaries. WE4F should continue to include efforts to educate potential beneficiaries, civil servants, and other stakeholders about these technologies to facilitate their diffusion and to assist both suppliers and customers to use them effectively through knowledge management.	• WE4F will address this through the program's enabling environment work in each RIH

WE4F should foster more exchange of information on the barriers that innovators are facing and efforts to overcome them. Initiating wider links with related embassies and other programs would further enhance WE4F's effectiveness.	• Each WE4F RIH incorporated this into their workplans and have regular meetings with innovators, donors, and other stakeholders to convene lessons learned events and other knowledge exchange dialogues
WE4F should further engage with innovators to list the barriers experienced and undertake online exchanges on the most common.	• Each WE4F RIH incorporated this into their workplans and have regular meetings with innovators, donors, and other stakeholders to convene lessons learned events and other knowledge exchange dialogues
Greater emphasis should be given to broadening the developing and emerging economies membership base of the Founding Partners (FPs) and linking these partners more effectively to the program. Such partners could help locate and support suitable innovators particularly from the South.	• The RIHs' enabling environment activities should outline work with local governments to ensure local ownership, as well as work with sub-regional and supra-regional organizations in which countries are members • WE4F Steering Committee is envisioned to include at least one emerging economy partner (South Africa) and will invite other emerging economy partners to contribute to the program
ESG Integration	
WE4F needs to focus on mitigation of climate change (and thus increased resilience) as a key direct objective by integrating Climate Smart Agriculture in the design and implementation of the supported innovations. Climate-smart agriculture (CSA) is an approach that helps to guide actions needed to transform and reorient agricultural systems to effectively support development and ensure food security in a changing climate	• WE4F's Environmental, Social, and Governance (ESG) Guidelines have integrated climate resilience, natural resource management, and biodiversity into innovation selection, technical assistance, and capacity building activities
WE4F should incorporate measures to work with local and national governments to design regulatory systems that foster the adoption and proper use of renewable energy solutions in agriculture. WE4F should work with electricity regulators to ensure that micro-grids can be built and profitably operated in rural communities without grid access. It should also ensure that solar-powered irrigation systems are regulated in a manner that does not overtax underground sources of water.	• WE4F's RIH have both built new and linked to existing regional and national working groups to address the policy gaps around the water-agriculture-energy nexus in a context and case-specific manner

Governments are increasingly interested in declaring agricultural zones or entire states as organic. Future programs should consider such a target in selection criteria. They should monitor closely.	• It will be at the discretion of each RIH as to whether they want to include this in the selection criteria. • This should also be considered for specific innovators
Gender Integration	
Further investigation is needed into uneven benefits from innovations for women and poor. Gender integration should be at the forefront of innovations and programs to help reduce the systemic inequality that exists in communities. The greater inclusion of women will assist in overcoming the limitation in the opportunities of one-half of its population. In addition, attention needs to be given to poor end-users to ensure greater benefit from innovations and improved income.	• WE4F considers this to be one of the most important findings and recommendations and has identified best practices and next steps in the WE4F ESG guidelines. • WE4F RIHs are preferring women-led, and women owned businesses in innovator selection (for example, 25% of innovators should be women-led). • All WE4F Technical Assistance includes an examination of gender context in service delivery • WE4F RIHs are promoting gender-lens investing • WE4F External Surveyors and External Evaluators will provide annual reviews on the extent to which WE4F innovations are benefitting men and women equitably
Provide consistent technical support and guidance to each variation of innovator to balance both the business (profitability) and social (vulnerable groups) model side of the equation to allow them to achieve both goals simultaneously and without sacrificing quality or performance. Cross subsidies need to be considered and included in the design of innovations. Gender Integration (or mainstreaming) should be a key consideration in innovation design. This strategy for integrating gender concerns in the analysis, formulation and monitoring of policies, programs and innovations to promote gender equality and the empowerment of women and the vulnerable in population and development activities should be considered for all innovations because different communities' groups demand different approaches.	• WE4F acknowledges the need to balance profit with social outcomes and has ensured that ESG issues are incorporated at all levels in the RIHs • WE4F recognizes that all innovations don't start at the same place with respect to their understanding of ESG issues and will address this by organizing innovator goals into three levels: basic, intermediate, and advanced (premier). Criteria will then be determined based on the innovator level
A greater emphasis is needed on Green Energy in WE4F. WE4F should continue to encourage women-led innovations to apply and make the proportion of women in management a criterion for selection to provide additional points in the selection process.	• see Gender integration sections above

Focused monitoring and evaluation of this indicator is needed to deepen understanding of the variance in responses. Special attention also needs to be given to understanding the variance between the average and levels of water accessibility to vulnerable groups such as Women and the Poor. Given the lower levels recorded overall for water efficiency, a strong recommendation would be to develop novel methods to make quantitative estimates for this important variable for WE4F.	• WE4F is disaggregating all in key performance indicators (KPIs) as well as some impact level indicators by gender to better understand these dynamic • WE4F has incorporated gender experts at each RIH to ensure that gender is examined in innovator selection, technical assistance, investment facilitation, and capacity building activities
Develop a standard set of targets, milestones and reporting system that could however be adapted to specific innovations as needed. Overall, results show that results for women and poor are lower than the average for all respondents. The reasons for this variance need to be explored. Apart from the key aspect of access to land and other resources there are those of education and social emancipation. Women may also prioritize production for domestic consumption rather for markets. A gendered division of labor and allocation of assets may affect the accurate estimation of variables such as income or agricultural production.	• see comments in box directly above
For more in-depth assessments of all impact measures, we recommend WE4F hire third party evaluators at the beginning of selected projects to track the effects of the innovation on changes in the impact indicators over time. The evaluators would also be responsible for measuring reductions in poverty and improvements in gender equality. Because of cost considerations, probably only a few innovations will be able to be evaluated in this fashion.	• The program will determine what methodologies to use to assess reductions in poverty and improvements in gender equality • WE4F will utilize external field surveyors to measure all impact and some outcome level data rather than this data being collected by innovators • WE4F will also engage external evaluators to examine this from a program level
Monitoring and Evaluation	
If not already in process at the inception of WE4F, efforts should be made to undertake further comparative cost and impact analysis of challenge funds. The FPs should, however, establish a methodology focused on consistent definition of terms, leading to comparisons of like-with-like. Further analysis and a webinar with Tripleline, the Evaluation Team, and the FPs would be a useful step towards identifying a unified approach and methodology.	• USAID has will engaged Tripleline to provide comparison criteria through which all grand challenges can be compared on cost-effectiveness and impact

WE4F should establish clear baselines on a well-defined set of indicators that will carefully track WE4F's or other programs' support and hold constant support (financial and technical) from all other donors. Set up a robust counterfactual along a set of clearly defined impact indicators to validate the contribution of WE4F and other programs to outcomes and results of funded innovations.	• The two Secretariat Units will hire external surveyors for the establishment of baselines; however, the setup of a counterfactual will require a longer conversation and may not fit the needs of the program.
Program Funding Strategies	
Further efforts to localize WE4F support would involve greater engagement with funder embassies and other donor programs with NGOs operating in related activities. WE4F should consider the most effective ways of partnering with or incorporating programs that offer locally available low-interest finance without over-burdening the innovations	• This is a key mandate in the Terms of Reference (e.g., the Brokering Unit and among the RIHs), as well as in the indicators • WE4F is also working to create synergy with other donors/programs (i.e., European Union (EU) co-financing)
More technical assistance (TA) support providers from developing and emerging economies should be listed and other aspects of choice explored such as contributions from innovators themselves to match funds to engage TA support providers. There should be a strengthened focus in the WE4F program on identifying barriers to diversifying funding sources and supporting innovations in access to private capital or income-generation (through directly related revenue or other fundraising).	• This was addressed through the local TA and Brokering Unit (BU) requirements • For USAID, this was mentioned by the MENA RIH during the proposal process and explored by the S/SEA RIH during work planning • GIZ is also recruiting a consulting firm to support innovators to better access to financing
Further experimentation with the vendor system in matching funds or another funding mechanism would be rewarded	• This is covered by the BU and investment facilitation
Sida, USAID and other funders should agree on a framework for cross comparison to enable a more rigorous assessment of the efficiency and effectiveness of different models of intervention. A comparative review should include the impact that the support has on the enterprise and also on the customers / users.	• There will be coordination between the two Secretariat Units to address this and will be incorporated into the external evaluation • This is a key question that will be discussed with GIZ and at the donor level

ANNEX II

ILLUSTRATIVE INDICATORS

ToC Level	Dimension in ToC	Indicator	Ref. #	Related KPI	#	Unit of Measure	Baseline Value
IMPACT	Innovators have scaled sustainable new solutions to challenges in the WE4F Nexus	Share of innovators that have increased production/ delivery of their core product/ service related to WE4F by 50% or more	Gin1	KPI1	1.1	% of Innovators	0
		Share of innovators that have introduced their product/ service to at least 1 new geographical market	Gin2	KPI1		% of Innovators	o
		Share of innovators that have introduced their product/ service to at least 1 new functional sector	Gin3	KP1	1.3	% of Innovators	0
	Customers in the market are using the newly developed products or services of the innovators	Share of innovators that have increased turnover from sales in the field of WE4F	Gin4			% of Innovators	0
	WE4F contributes to increased food production along the food value chain through a more sustainable and efficient usage of water and/ or energy	Number of WE4F innovation end-users that emit 12.5% less greenhouse gases per food unit along entire value chain	Gin5		3.1	# of end-users	TBD
		Total greenhouse gas emissions saved per year by end-users through use of products/services of WE4F innovators	Gin6			tons CO2e	TBD
		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	Gin7	KPI3		% of end-users	TBD
		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	Gin8	KPI3		% of end-users	TBD
	WE4F contributes to increased income for women and men including the poor in both rural and urban areas	Number of WE4F innovation end-users whose gross annual income has increased by at least 10% in comparison to the standard in the same sector	Gin9	KPI17	4.1	# of end-users	0
		Number of new jobs created in WE4F innovator companies	Gin10			# of jobs	0

	UAID Taget Value	REporting Time	Data Source	Secondary Data Source	Collection & Reporting Responsibility	GIZ Reporting
	25%	Annual	Innovator business documents	N/A	RIH	Y
	10%	Annual	Innovator busines documents	N/A	RIH	Y
	TBD	Annual	Innovator businessdoc-uments	N/A	RIH	N
	50%	Annual	Accounting documents of innovators	N/A	RIH	Y
	30,000	Annual	Innovator business documents	Life-cycle assessment	ES	Y
	TBD	Annual	Innovator business documents	Life-cycle assessment	ES	Y
	15%	Annual	Innovator business documents	End-user surveys	ES	Y
	15%	Annual	Innovator business documents	End-user surveys	ES	Y
	57,000	Annual	Innovator business documents	End-user surveys	ES	Y
	100	Annual	Innovator business documents	N/A	RIH	Y

OUTCOME	Capacities of innovators are i mproved	Share of innovators that have increased their physical production capacity by 20%	Gin11		1.1	% of Innovators	0
		Share of innovators that have enhanced manage-ment capacities as a result of WE4F support in terms of a. roles and responsibilities of key decision-makers b. financial management c. human resources management	Gin12		1.2	% of Innovators	0
		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)	Gin13	KPI18	1.3	% of Innovators	0
	Mobilization of exter-nal funding for inno-vators is increased	Share of innovators that have raised more than $100,000 (USD) in external funding	Gin14		2.1	% of Innovators	0
	Enabling environment for innovators and relevant stakeholders in targeted regions is improved	Share of innovators that re-port 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	Gin15		3.1	% of Innovators	0

OUTPUT	Newly selected innovators have developed a viable business model on company level	Share of innovators that have developed a viable business model for their product/service			1.1	% of Innovators	TBD
	Newly selected and existing innovators have strengthened their development impacts - poverty, gender equity, envi-ronment	Number of innovators that have increased knowledge of aspects of: a. gender equity b. poverty reduction c. environmental gains	Gin17		2.1	# of Innovators	0
	Innovators have gained knowledge on and contracts for at-tracting investments or finance	Share of innovators that report increased knowledge of investment opportunities			4.1	% of Innovators	0
		Share of innovators that had personal meetings with at least 3 potential investors			4.2	% of Innovators	0
		Number of external partnerships formed by innovators			4.3	# of partner-ships	0
	Innovators' business models are able to scale solutions in WE4F nexus	Share of innovators that are assessed as "invest-ment ready" by potential investors or loan providers from the WE4F network			5.1	% of Innovators	TBD

	10%	Annual	Innovator business documents	Documen-tation of resources	RIH	N
	30%	Annual	TAF Annual Innovator Diagnostic	Documen-tation of internal processes, standards, and re-sources	RIH	N
	80%	Annual	Innovator surveys	Documen-tation of tools, methods, or processes	RIH	N
	15%	Annual	Account-ing doc-uments of innova-tors	N/A	RIH	Y
	25%	Annual	Innovator surveys	N/A	RIH	N
	50%	Annual	Innovator Surveys	N/A	RIH	Y
	TBD	Semi-Annual	TA QoSS and Hub QoSS	RIH TAF 6-month Follow-Up Calls	RIH, Secretariat	N
	30%	Semi-Annual	TA QoSS and Hub QoSS	RIH TAF 6-month Follow-Up Calls	RIH, Secretariat	N
	25%	Semi-Annual	Innovator surveys	N/A	RIH	N
	TBD	Semi-Annual	Innovator surveys	N/A	RIH	N
	25%	Annual	Innovator surveys	N/A	RIH	N

OUTPUT	Selected knowledge gaps on markets and technologies have been addressed	Share of innovators that have increased knowledge on specifics of their market due to learnings from or facilitated by WE4F.			6.1	% of Innovators	0
		Share of service providers and/ or investors (for TA and financial brokering services) that report increased knowledge on specific markets or due to learnings from or facilitated by WE4F			6.2	% of service pro-viders/investors	TBD
	Regional innovation RIHs and innovators have learned from field experiences of other regional innovation RIHs and innovators	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			7.1	# of innovators	0
	Policy-makers & other stakeholders are sen-sitized for challenges & solutions in WE4F nexus	Number of local or regional policy dialogues organized without WE4F involvement that discuss solutions provided by innovators			8.1	# of policy dialogues or me-dia publica-tions	0
	Finance institutions are sensitized and trained in business opportunities in the WE4F nexus	Number of finance institutions that have participated in in-stances of technical assistance regarding business opportunities in WE4F nexus			9.1	# of finance institutions	0
		Number of finance institutions engaged by RIH investment facilitators that have adapted their portfolio to meet needs of end-users in WE4F nexus			9.2	# of finance institutions	0
		Number of external partnerships formed by Regional innovation Hubs			9.3	% of partner-ships	0
		Number of end-users using financing mechanisms adapt-ed or created through WE4F engagement				# of end-users	0
	Learnings, knowledge and experiences are compiled and shared with stakeholders in the WE4F nexus on local, regional and global level	Number of events or presenta-tions 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				# of presenta-tions or events	0
		Number of publications that spe-cifically 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 includ-ing innovators c. interactions with policy-makwers d. sensitizing finance institutions on business opportunities within the WE4F nexus	Gin31	KPI10		# of publications	0
		Share of external stakeholders on the a. global level b. regional innovation level that are aware of relevant lessons learned made by WE4F				% of external stake-holders	0

	50%	Semi-Annual	TA QoSS and Hub QoSS	RIH TAF 6-month Follow-Up Calls	RIH, Secretariat	N
	50%	Annual	Service pro-vider/investor surveys	N/A	RIH	N
	TBD	Annual	Innovator surveys	N/A	RIH	N
	TBD	Semi-Annual	Docu-menta-tion of policy dialogues or media publi-ca-tions	N/A	Secretariat	N
	TBD	Annual	TA Records	N/A	RIH	Y
	10	Annual	Survey with financial insti-tu-tions	N/A	RIH	Y
	TBD	Annual	RIH Records	N/A	RIH	Y
	TBD	Annual	Finance Institu-tions Surveys	End-User Records	RIH	Y
	10	Annual	Docu-menta-tion of events or presen-ta-tions	N/A	Secretariat	Y
	8	Annual	Docu-men-ta-tion of publica-tions	N/A	Secretariat	Y
	TBD	Annual	Website, newslet-ters, and other social media metrics	N/A	Secretariat	N

ACTIVITIES		Grant volume provided per innovator			1.1	US Dollars	0
		Share of co-funding provided by innovators themselves to match grant for developing/advancing innovation			1.2	% of co-funding	0
	Identification of new innovators with high impact potential in WE4F nexus	Number of innovators being selected in the each WE4F Nexus Innovation Type				# of innovators	0
		Ratio of applicants to selected innovators per call				Ratio (total # applicants: total # of selected innovators)	0
		Number of innovators that are selected outside the call structure				# of innovators	0
	Provision of technical assistance to existing and new innovators	Number of instances of technical assistance provided on: • Investment readiness • Business development • Product development/refinement • Gender integration • BoP impact • Environmental sustainability • Organizational capacity development • Public relations and communications • Market Research and Analysis • Marketing and Sales • Legal services and grant agreement compliance; MEL Advisory Services; Other				# of instances of TA	0
		Quality of instances of technical assistance assessed by participants				Score	0
	Match making between innovators and investors as well as provision of financing instruments	Number of matchmaking events organized by WE4F			5.1	# of events	0
		Number of contacts of potential investors provided to innovators by WE4F				# of contacts	0
		Share of innovators that made use of the financial guarantee instruments				% of innovators	0
	Knowledge generation and facilitation of knowledge exchange horizontally and vertically within the WE4F structure	Number of events organized to facilitate knowledge exchange horizontally within the WE4F structure (e.g. regional or interregional conference)				# of events	0
	Advocacy for an enabling environment on the global, regional and local level	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				# of events/ publica-tions	0
	Capacity development of innovators, multipliers, financing institutions, and other stakeholders	Share of innovators for which individual and up to date acceleration workplans are in place				% of innovators	0

	TBD	Semi-Annual	Account-ing docu-ments of innova-tors	WE4F accounting documents	RIH	Y
	TBD	Annual	Account-ing docu-ments of innova-tors	N/A	RIH	N
	TBD	After each call	WE4F docu-menta-tion	N/A	RIH	Y
	TBD	After each call	WE4F docu-ment-tation	N/A	RIH	Y
	TBD	After each call	WE4F docu-menta-tion	N/A	RIH	Y
	TBD	Semi-Annual	TA records	TA QoSS	RIH	Y
	Score: 4 or 5	Semi-Annual	TA QoSS	N/A	RIH	N
	5	Semi-Annual	WE4F docu-menta-tion	N/A	Secretariat	Y
	TBD	Semi-Annual	Innova-tor surveys	N/A	RIH	N
	TBD	Semi-Annual	Innova-tor surveys	Accounting documents of innovators	RIH	N
	3	Semi-Annual	WE4F docu-menta-tion	N/A	Secretariat	Y
	5	Semi-Annual	WE4F docu-menta-tion	N/A	Secretariat	Y
	TBD	Semi-Annual	RIH Records	N/A	RIH	N

ANNEX III

WE4F INTRODUCTORY WEEK

Held from September 8 to 11, 2020, consisted of seven sessions focused on educating registrants about the new WE4F program and the successes and challenges of its predecessors Powering Agriculture: An Energy Grand Challenge and Securing Water for Food. The event page attracted 4,742 views and registered a total of 491 people across the seven sessions:

- Becoming One: Official Launch of Water and Energy for Food
- Securing Water for Food in Review: Impacts and Evaluations from the Dexis Team
- 40 Innovators, 7 Million People and 19 Billion Liters: Lessons Learned from Securing Water for Food
- Powering Agriculture's Final Evaluation: What Have We Accomplished?
- Impact of Powering Agriculture: On the Ground and at 30,000 Feet
- Same Mission, Different Solutions: SWFF & PAEGC Views on Technical Assistance & Innovation Scaling
- New Program, New Solutions– - Water and Energy for Food's Path Forward

Event	Type	Registrations	Attendees (over 20min participation)	YouTube Views (as of 12/31/2020)	1	2	3
Becoming One: Offical Launch of WE4F	Introductory Week	334	153	78	USA	Netherlands	Kenya
SWFF Evaluation Webinar + Lessons Learned Webinar	Introductory Week	332	123	74	USA	Netherlands	Kenya
PAEGC Evaluation Webinar + What Have We Accomplished Webinar	Introductory Week	359	91	48	USA	Netherlands	Kenya
WE4F Path Forward + Same Mission, Different Solutions	Introductory Week	387	118	53	USA	Netherlands	Kenya

WE4F HUB KICKOFFS

The WE4F Hub Kickoffs were held from September 28 to September 30, 2020, with each RIH hosting its own webinar. RIH staff developed presentations with the purpose of introducing target audiences to the RIH's structure, activities, and vision, and explaining how external parties can get involved. The Kickoff event pages had 8,913 views, and, in total, the events had 963 registrants and 477 attendees.

- MENA Hub Kickoff
- S/SEA Hub Kickoff
- West Africa Hub Kickoff (English)
- West Africa Hub Kickoff (French)
- East Africa Hub Kickoff

Event	Type	Registrations	Attendees (over 20min participation)	YouTube Views (as of 12/31/2020)	1	2	3
MENA Hub Kick-Off	Hub Kick Off	421	184	186	Lebanon	Egypt	Jordan
SSEA Hub Kick-Off	Hub Kick Off	180	60	76	USA	Indonesia	Thailand
WA Hub Kick-Off (ENG)	Hub Kick Off	170	62	45	Ghana	USA	Germany
WA Hub Kick-Off (FR)	Hub Kick Off	108	55	18	Burkina Faso	CIV	Senagal
EA Hub Kick-Off		261	116	54	Kenya	USA	Uganda

WHERE DO WE GO FROM HERE? LESSONS LEARNED FOR FUTURE WEF PROGRAMMING.

To capitalize on innovator learnings and experiences, the 11-part learning series featured innovators sharing their experiences with both programs, lessons learned from the Technical Assistance Facility, and recommendations to improve future water, energy, and agriculture programming. The webinar series event page had 2,757 views, and 250 unique registrants signed up for an average of six webinars per person. Each session highlighted a specific cross-cutting theme:

- Supporting Innovators Post COVID-19
- Navigating Business Models for Base of the Pyramid Consumers
- What Prevents Innovators from Accessing Private Capital—A PAEGC Perspective
- Investment Landscapes Across the WE4F Regions
- Policy and Regulatory Needs of Technology Providers in the Clean Energy--Agriculture Nexus
- From Theory to Practice: Gender Integration Journey of SWFF Innovators
- Un Environnement Favorable pour des Entreprises Agroalimentaires Durables
- An Enabling Environment for Sustainable Agribusinesses
- An All-Around Take on Capacity Development for Solar-Powered Irrigation
- Social Rates of Return and Innovators' Perspective on Local Impact
- Environmental Monitoring and Support for Innovators

Event	Type	Registrations	Attendees (over 20min participation)	YouTube Views (as of 12/31/2020)	1	2	3
10/07 - Supporting Innovators in a Post COVID-19 World	Lessons Learned Series	73	16	30	USA	Kenya	Palestine
10/14- Navigating Business Models for Base of the Pyramid Consumers	Lessons Learned Series	98	34	169	USA	Kenya	Netherlan
10/21 - What Prevents Innovators from Accessing Private Capital—A PAEGC Perspective	Lessons Learned Series	106	33	30	USA	Kenya	Sweden
10/28 - Investment Landscapes Across WE4F Regions	Lessons Learned Series	114	24	47	USA	Lebanon	Kenya
11/04 - Policy and Regulatory Needs of Technology Providers in the Clean Energy-Agriculture Nexus	Lessons Learned Series	71	26	1	USA	Kenya	Sweden
11/11 - From Theory to Practice: Gender Integration of SWFF Innovators	Lessons Learned Series	67	19	15	USA	Kenya	Sweden
11/18 - Un Environnement Favorable pour des Entreprises Agroalimentaires Durables	Lessons Learned Series	52	32	18	USA	Kenya	CIV
11/19 - An Enabling Environment For Sustainable Agribusinesses	Lessons Learned Series	62	38	12	USA	Kenya	Germany
11/25 - An All-Around Take on Capacity Development for Solar-Powered Irrigation	Lessons Learned Series	52	38	18	USA	Kenya	Lebanon
12/02 - Social Rates of Return and Innovators' Perspective on Local Impact	Lessons Learned Series	88	52	5	USA	Kenya	Sweden

ANNEX IV: RISK MATRIX SECRETARIAT UNIT

Risk	Mitigation
Financial Risk	
Inability to fulfill financial commitments made to the RIHs (and in turn the innovators) in a timely manner to support operational activities.	• Developing appropriate financial management mechanisms at both the program and hub levels, including an annual financial report that tracks funding and disbursement across the donors.
Operational Risk	
Corruption related to innovator and service-provider selection.	• Developing selection criteria for both new innovators and SWFF/PAEGC innovators. • Creating guidelines for RIH's RAB members, including nondisclosure agreements (NDAs) and the identification of any conflicts of interest. • Providing of anticorruption training to RIH staff and adherence to strict codes of conduct encompassing donor rules and regulations.
Insufficient knowledge sharing and lack of outreach activities.	• Using program-wide CKM Strategies • Organizing recurring meetings where hubs can share successes, failures, and lessons learned.
Potential leakage of proprietary information and organizational secrets.	• Managing end-to-end data integrity by all existing and potential partners, innovators, investors, and other key stakeholders signing comprehensive NDAs. • Prohibiting storage of any personally identifiable information (PII) on any third-party technological platforms. • Encrypting all files.

Developmental Risks	
Crowding out of investors and service providers.	• Carrying out investor landscape studies in all regions (MENA, S/SEA, EA, WA, S/CA)
Customers not being ready to buy innovators' products/services under market conditions due to high price levels.	• Integrating end-user financing support through various national and regional partners, as well as working with innovators to build alternate financing mechanisms that fit their business models.
Innovators having a negative environmental impact, especially related to biodiversity, water and other natural resources like soil. Risk of short sustainability of innovations – impacting end-users benefit.	• Establishing criteria for innovator selection process that aim to weed out applications that may have a harmful effect on the environment • Identifying innovations that could pose a future threat to the environment • Working diligently with innovators, providing appropriate technical assistance and expert advisory services through in-house environment experts or Tier 2 vendors. • Integrating environmentally beneficial practices through capacity development activities such as workshops, peer-to-peer learning, sector studies, and partnerships with other stakeholders that support environmental sustainability.
Economic and Social risks (e.g., destruction of jobs; negative impact on women and the base of the pyramid; and debt traps through finance schemes).	• Assessing innovators' business models in relation to ESG issues (specifically BOP impact, gender integration, and environmental sustainability) • Conducting yearly audits, needs assessment exercises, and quarterly and semiannual RIH meetings to assess these risks at constant intervals and take mitigation actions (e.g., customized TA, advisory sessions with experts, etc.). • Providing focused TA and capacity building, expert advisory input, and sector studies are applied if implementation of cross-cutting thematic recommendations (e.g., gender, ESG, and BOP integration) is met with resistance from the innovators.

EAST AFRICA

Risk	Mitigation
Political Risk	
• Political and economic instability, particularly as elections are upcoming in 2022	• Close cooperation with governmental ministries and close monitoring of political and economic processes • Security Risk Management of Country Office (SRMO)
Implementation Risks	
• Distorting competition in local and regional markets for sustainable technologies by promoting individual innovators	• considering possible distortions of competition prior to funding (i.e., selection criteria; exclusion of companies that have received significant grants in the past)
• Lack of conducive framework conditions for innovations	• Careful selection of priority topics and - if possible - cooperation with locally anchored policy consulting projects • Engaging with policymakers by facilitating study trips, working groups, exchange forums, policy round tables, etc.
• Decreased outreach due to COVID-19	• Increasing outreach through digital events, capacity development measures and even digital innovations.
Risk for Long-Term Anchoring	
Lack of maintenance of innovations	• Supporting the organization of smallholder farmers (e.g., in the form of cooperatives) in order to share experiences and support each other in terms of utilization and maintenance of the innovation
End-users might not opt for solar technologies because they think fossil fuels are cheaper.	• Building-up consulting and advisory services through cooperation with local projects and with governmental and private consulting services and non-governmental organizations. • Information and education on medium- and long-term price developments and on the profitability of sustainable energy technologies.

Lack of behavior change in regard to agricultural practices (from conventional to innovative practices)	• Cooperation with local NGOs familiar with the target group and governmental and private consulting services.
Environmental & Social Impact Risk	
Unintended negative impacts of innovations on the environment and the society (e.g., over extraction of water, unsustainable coolants, only better off farmers profit from sustainable technologies)	• anchoring corresponding environmental and social aspects in the funding criteria for innovations • develop an environmental monitoring system with regular audits • sensitize agricultural advisors and agricultural training institutions
Climate change impacts (esp. floods and droughts) and natural disasters (e.g., locusts) are increasing in frequency and strength, posing a risk to agricultural production and value chains as well as farmer's livelihoods.	• Support climate-friendly innovations that consider adaptation and mitigation only
Corruption Risk	
Corruption hinders the business development of innovators.	• Technical assistance for sound finance management; policy engagement with relevant government agencies
Corruption of project funds leads to inefficiencies and reputational risks.	• Timely audits of partners; four-eye principle when checking financial statements, vouchers and reports

MIDDLE EAST AND NORTH AFRICA

Risk	Mitigation
Operational Risk	
Corruption related to innovator and service-provider selection.	• Two-stage selection process of innovators • Publication of the scoring weights per Expression of Interest (EOI) question • Inclusion of independent experts in the RAB, the milestone-based grants and innovator co-funding. • Due diligence will also be performed and may include performance rating done by independent entities.
COVID-19 limiting outreach and engagement of RIH in local business ecosystem activities	• Expanding and building ties with cross-sectoral outreach partners and multiplicators, ministries, trade unions, and chambers of commerce to better reach the right target audiences through joint events, mini pop-up talks, and targeted, content-driven webinars
Difficulties in working relationships with RIH subcontractors	• Ensure that subcontractors have the control framework needed to carry out their responsibilities, • Have them complete questionnaires on internal controls—similar to pre-award survey questionnaires for innovators.
Geopolitical instability	• Pivot as needed to adapt to changing on-the-ground situations.

SOUTH AND SOUTHEAST ASIA

Risk	Mitigation
Political and Social Risk	
Changing socioeconomic and political context can affect program implementation (e.g., COVID-19)	• Monitor on-the-ground situation
Differing social and cultural norms can affect program engagement and outreach	• Incorporate a variety of offline and online approaches into CKM Operational Plan. • Country Coordinators will bridge and close communication gaps in the focus countries
Operational Risk	
Imbalanced innovator location	• designed innovator selection criteria to align with the objectives of the WE4F program • Pursue new relationships and networks in countries where WE4F currently has a limited presence
Ineligible applicants due to applicants not being the right size	• Make more clear and concrete in the CFI shared language what type of applicants are eligible • Each out to business networks and chambers of commerce to reach more mature companies
Investment Risk	
Investors and lenders typically approach agricultural sectors with caution	• WE4F works with innovators to create attractive investment opportunities • Mitigating risk through WE4F innovations. See below table for examples.
Missing intermediary and transaction services ecosystems are missing in S/SEA – lack of ability to gather data, bring together experts, and verify information.	• Serving as a neutral third-party providing investment facilitation services for both WE4F innovators and WE4F nexus investors • pooling the costs of identifying and providing due diligence transactions, in addition to serving as a trusted adviser throughout the investment process.

Limited sophistication and quality of investment materials created by capital seekers	• Brokering Unit works alongside the Technical Assistance Unit as the innovators grow by preparing them for a capital raise process. • Preparation of capital-raising process documents: 1. Well-vetted financial model, 2. Data room with company documents and information for a later diligence process, 3. Marketing documents

WEST AFRICA

Risk	Mitigation
Political Risk	
• Political and economic instability as well as terrorism and violence	• Close cooperation with governmental ministries and close monitoring of political and economic processes
Implementation Risks	
• lack of conducive framework conditions for innovations	• careful selection of priority topics and - if possible - cooperation with locally anchored policy consulting projects • engaging with policymakers by facilitating study trips, working groups, exchange forums, policy round tables, etc.
• Slowed down implementation due to COVID-19	• Adjust methods and approaches, e.g., more digital approaches and implementation of grant agreements while CFIs are not possible

Risk for Long-Term Anchoring	
• lack of maintenance of innovations	• Supporting the organization of small-holder farmers (e.g., in the form of cooperatives) in order to share experiences and support each other in terms of utilization and maintenance of the innovation • Building-up consulting and advisory services through cooperation with local projects and with governmental and private consulting services and non-governmental organizations.
• Lack of business ecosystem required for long term business success	• Providing technical assistance to innovators and engaging with investors in the region early on
• High prices of innovations prohibit sales	• Developing tools to compare long and short-term price developments and amortization rates of conventional vs. sustainable technologies
• Lack of behavior change in regard to agricultural practices (from conventional to innovative practices)	• cooperation with local NGOs familiar with the target group and governmental and private consulting services.
Environmental & Social Impact Risk	
• unintended negative impacts of innovations on the environment and the society (e.g., over extraction of water, unsustainable coolants, only better off farmers profit from sustainable technologies)	• anchoring corresponding environmental and social aspects in the funding criteria for innovations • develop an environmental monitoring system with regular audits • sensitize agricultural advisors and agricultural training institutions
Corruption Risk	
• Corruption hinders the business development of innovators.	• Provide technical assistance to innovators in regard to proper financial management

ANNEX V

S/SEA INNOVATORS

Organization Name	Innovation	Countries of Implementation	Summary
Adaptive Symbiotic Technologies (AST)	Bioensure	India, United States	AST's BioEnsure® is a fungal seed and plant treatment that, when sprayed onto seeds, helps plants to adapt to water-related stress. By applying BioEnsure®, crops can grow in suboptimal conditions and use 50% less water. BioEnsure is the only product on or soon to be on the market that can confer stress tolerance. Currently, BioEnsure® is being applied to 4 food crops–okra, maize, wheat, and millet.
Lal Teer Seeds	Saline Tolerant Seed	Bangladesh	Lal Teer Seed, has developed and deployed an innovation that combines locally-developed saline-tolerant vegetable seeds with easily adaptable methods for cultivating in high saline areas. The company also provides micro-finance linkages, ICT support and extension advisory services to smallholder farmers. The company aims to address the saline intrusion in farmlands in southern Bangladesh, which reduces agricultural productivity.
aQysta	Basha pump, Hypump	India, Indonesia, Nepal, Colombia, Malawi	aQysta's Barsha pump is a low-cost, innovative solution for smallholder farmers to irrigate their fields without using any fuel or electricity. The hydro-powered pump is easily implemented anywhere there is flowing water nearby and requires little maintenance.

MimosaTEK	Internet Of Things Platform	Vietnam	MimosaTEK's solution – an internet of things platform for precision agriculture in Vietnam – monitors and analyzes data on farms by sensors (to measure soil moisture, rain, wind, light) to recommend to farmers a precise irrigation schedule in real-time. The user can further activate their irrigation system or other equipment in their greenhouses automatically via the mobile application anytime and from anywhere.
Village Infrastructure Angels (VIA)	Solar Agro-processing Power Stations	Indonesia, Honduras, Vanuatu, Papua New Guinea, Kenya, Tanzania, Benin.	Village Industrial Power (VIP) steam plants are powered through the combustion of biomass waste produced at local agricultural processing facilities. The VIP Plants generate mechanical/electrical/thermal energy for use in a diverse range of agricultural activities–processing fruit, palm, rice, and cocoa; dairy pasteurization; purifying water; and powering irrigation pumps.
Claro Energy	Low Cost Pay-per-use Irrigation Using Solar Trolley Systems	Myanmar, Nepal, India	Claro Energy has developed a pay-per-use irrigation service that uses a portable solar pump. The portable design provides affordable, convenient, and on-demand irrigation. The service meets the needs of a wide range of farmers who do not own pumps, with no upfront capital costs incurred. The farmer can call a toll-free line, pre-pay, and schedule irrigation service at his field. This ensures low cost of irrigation for the farmer. In addition, Claro Energy has successfully piloted and now plans to purchase the farmer's produce and sell it in the market for the farmers it serves. An added benefit of doing this is that there is near zero food wastage and efficiency losses which happens when food is mishandled. Claro Energy is able to aggregate produce, grade, sort, pack, and transport in an economically sustainable manner. Market linkage of farmer's produce also has a stabilizing effect on the upstream irrigation demand and helps to build a cohesiveness farmer relationship.

Husk Power Systems	Biomass And Solar PV Hybrid Mini-grids For Off-grid Farming Communities	India, Tanzania, Nigeria	Husk Power Systems builds, owns, operates, and manages a hybrid solution that combines a biomass gasification system with a solar photovoltaic (PV) system. Husk Power System's solution allows access to electricity in rural, off-grid communities extends the hours available for agricultural operations. The biomass plant uses a proprietary downdraft gasification technology that converts abundant agricultural residue, such as maize cobs, rice husks, coffee husks, and cotton stalks, into electricity. The system powers a mini-grid that produces electricity for residential, as well as agricultural, commercial, institutional, and industrial, needs. The electricity is distributed to rural households and micro-enterprises through a mini-grid system—providing a better quality, cheaper way to meet their needs for energy. Agricultural uses that will be powered include irrigation pumps, agro-processing mills, and drying and heating processes.
Promethean Power Systems	Reducing Milk Spoilage Through Solar-powered Chilling	India, Bangladesh	Promethean's refrigeration solution uses a thermal energy battery pack that charges on intermittent power sources such as solar power and/or a few hours of grid electricity. This provides cold storage around the clock despite inconsistent access to electricity. Dairy processors can collect raw milk from remote dairy farmers and keep it cold in a rapid milk cooler, reducing the time that milk is unchilled by 75 percent. Promethean has designed and deployed the refrigeration systems in collaboration with India's largest private dairy and one of India's largest solar installers.

Agrosolar	Agrosolar	Myanmar	Agrosolar's solar-powered pumps are Pay-As-You-Go (PAYGO) enabled, allowing for affordability that allows end-users to digitally pay for solar energy in customized amounts (fixed or usage-based) and in flexible repayment schedules (weekly, monthly, seasonally). This product is integrated into one of the leading last-mile management platforms allowing Agrosolar to onboard new customers in areas with little or no mobile money coverage, improve communication and troubleshooting with customers remotely, and potentially switch off in case of default of payment.
RecyGlo	Waste to Energy	Cambodia, Indonesia, Malaysia, Myanmar and Singapore	RecyGlo strives to provide environmentally-friendly recycling solutions to Myanmar and the Southeast Asian region. Their practices include solutions for paper, glass, can, metal, Aluminum, plastics, e-waste, medical waste, and organic waste. Among these services, RecyGlo provide solutions for organic waste and manure by turning them into biogas and using the remaining sludge as fertilizer. RecyGlo has already implemented this solution at a horse club and seen positive results. Additionally, they provide solution for e-waste by recycling batteries and integrating them into solar panel sets, providing renewable and clean energy for cooking. RecyGlo would like to scale these services in Myanmar, a country with 70% of its population working in agriculture and with urgent needs for energy.
ATEC Biodigesters International	Paygo-enabled Biodigester	Cambodia, Bangladesh	ATEC Biodigesters International provides a PAYGO financing model for smallholders to increase adoption of its biogas system. Our PAYGO model enables farmers to purchase a biodigester and pay off their system for as little as $1 per day. Farmers also often use the money generated from our biogas system to make the payments.

ANNEX VI: TECHNICAL ASSISTANCE CATEGORIES

TA Category	Definition
Investment readiness	Investor matching Deal brokering and structuring (Term-sheet negotiation) Financial analysis and projections Investment strategy Company valuation Investment MoUs Investment sources analysis GiZ: Investor landscape analysis GiZ: transaction advisory services
Investment Readiness: includes TA which aims to improve the innovators's ability to identify potential investors, attract and meet the requirements of potential investors, financially manage existing investments, or which provide investment brokerage services. This type of TA may include a focus on investor matching, deal brokering and structuring, investment sources analysis, financial analysis and projections, investor landscape analysis, investment strategy, transaction advisory services, company valuation, or investment MoU support.	
Business development	Business modelling/planning Business mentorship Partner identification and Partnerships Smallholder farmer marketing and sales GiZ: Proposal writing
Business Development: includes TA which aims to support the overall strategic growth of an innovator and accelerate scaling in terms of the market size and/or income of the innovator's business. This type of TA may include a focus on business modelling, proposal writing, business mentorship and networking support, or partner identification.	

Product development/refinement	Product diversification Product launch strategy Product lifecycle management advisory Product development/refinement GiZ: Product quality control
Product Development/Refinement: this includes TA which aims to improve the technical quality or inherent marketability of a specific product or services provided by an innovator in an effort to accelerate scaling of the product or service. This type of TA may include a focus on product diversification, product quality control, product lifecycle management, product development or refinement.	
Gender Integration	Gender inclusive business modelling Gender integration policy and advocacy Gender mainstreaming advisory Gender based missing markets analysis Partnerships for gender integration
Gender Integration: this includes TA which aims to maximize positive impact and/or minimize negative effects of WE4F innovations on female end-users and stakeholders along the food value chain while increasing the portion of innovation end-users who are female. This may include a focus on gender inclusive business modelling, gender mainstreaming advisory services, gender-based missing markets analysis, advisory services related to gender integration policy and advocacy or supporting partnerships that further innovator goals related to gender equity.	
BOP impact	End user financing modelling Impact assessment studies BOP outreach advisory BOP business model innovation advisory Partnerships for BOP impact
Base of Pyramid (BoP) Impact: this includes TA which aims to maximize positive impact and/or minimize negative effects of WE4F innovations on poor and extremely poor end-users and stakeholders along the food value chain while increasing the portion of innovation end-users who are considered to be in the Base of the Pyramid for a given set of end-users or local stakeholders. This may include a focus on end-user finance modelling, BoP impact assessments, BoP business model advisory services related to reaching BoP groups, or facilitating partnerships focused on BoP impact.	
Environmental sustainability	Holistic environmental compliance assessment Environment lens funding

Environmental Sustainability: this includes TA which aims to maximize the positive impacts and/or minimize any negative effects of WE4F innovations on environmental sustainability including conservation of natural resources and biodiversity, climate change adaptation, or environmental pollutant reduction. This may include a focus on holistic environmental compliance, environmental impact assessments, or the facilitation of partnership which support environmental sustainability.	
Organizational capacity development	Human resource management Supply chain development Customer service strategy and operations advisory Operational efficiency and expansion advisory GiZ: Financial management and accounting systems GiZ: audit system efficiency GiZ: team management and leadership training/coaching
Organizational Capacity Development: this includes TA which aims to improve the internal processes, procedures, and resources of an innovator's organization in such a way that organizational capacity is improved. This may include a focus on human resources management, supply chain development, customer service operations, financial management and accounting systems, audit system efficiency, team management and leadership training/coaching, or operational efficiency and expansion.	
PR and communications	Branding Graphic design Website development Media training Presentation coaching/ Storytelling
Public Relations (PR and Communications): this includes TA which aims to improve external communication activities of innovators and their organization directed towards external stakeholders. This may include a focus on branding, graphic design, website development, media training, or presentation coaching with a focus on local government, international organizations, or other audiences excluding investors.	
Market research and analysis	Missing market analysis Sector/Theme based market studies Geography/Region based market research
Public Relations (PR and Communications): this includes TA which aims to improve external communication activities of innovators and their organization directed towards external stakeholders. This may include a focus on branding, graphic design, website development, media training, or presentation coaching with a focus on local government, international organizations, or other audiences excluding investors.	

Market research and analysis	Missing market analysis Sector/Theme based market studies Geography/Region based market research
Market Research and Analysis: this includes TA which aims to improve innovators' market knowledge and provide information on the existing or potential product or service markets of an innovator. This may include a focus on missing markets analysis, sector/theme-based market research or geography/region-based market research.	
Marketing and Sales	Smallholder marketing and outreach Social media marketing Sales modelling and strategy Sales processes and operationalization Sales training
Marketing and Sales: this includes TA which aims to create or improve innovator strategies and activities related to marketing or sales of an innovators' product or service in order to support scaling and an increase in innovation end-users. This may include a focus on smallholder marketing and outreach, social media marketing strategies, sales modelling and strategies, sales processes, or sales-focused training.	
Legal services and grant agreement compliance	Legal advisory Partner/Vendors contract advisory Intellectual property advisory
Legal Services and Grant Agreement Compliance: this includes TA which provides advisory services and education on topics related to legal agreements, requirements, or regulations that innovators' encounter with external governing bodies, external private stakeholders or their existing legal agreements and contracts with the WE4F program or RIHs. This may include legal advisory services, partner/vendor contract advisory services, or intellectual property advisory services.	
MEL advisory	
Monitoring, Evaluation, and Learning (MEL) Advisory Services: this includes MEL advisory services and technical MEL support for innovators which may clarify existing MEL requirements, provide resources and training on quality data collection and data management, or evaluate innovator MEL operations to help innovators' more easily meet MEL requirements.	
Others	Policy and advocacy Technical writing and scope of work development Travel services Information technology support services
Other: this only includes TA which cannot be categorized under another existing type of TA and includes a wide range of TA focuses and services. This type of TA may include but is not limited to: travel service support, technical writing and SOW development, or information technology support services.	

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